



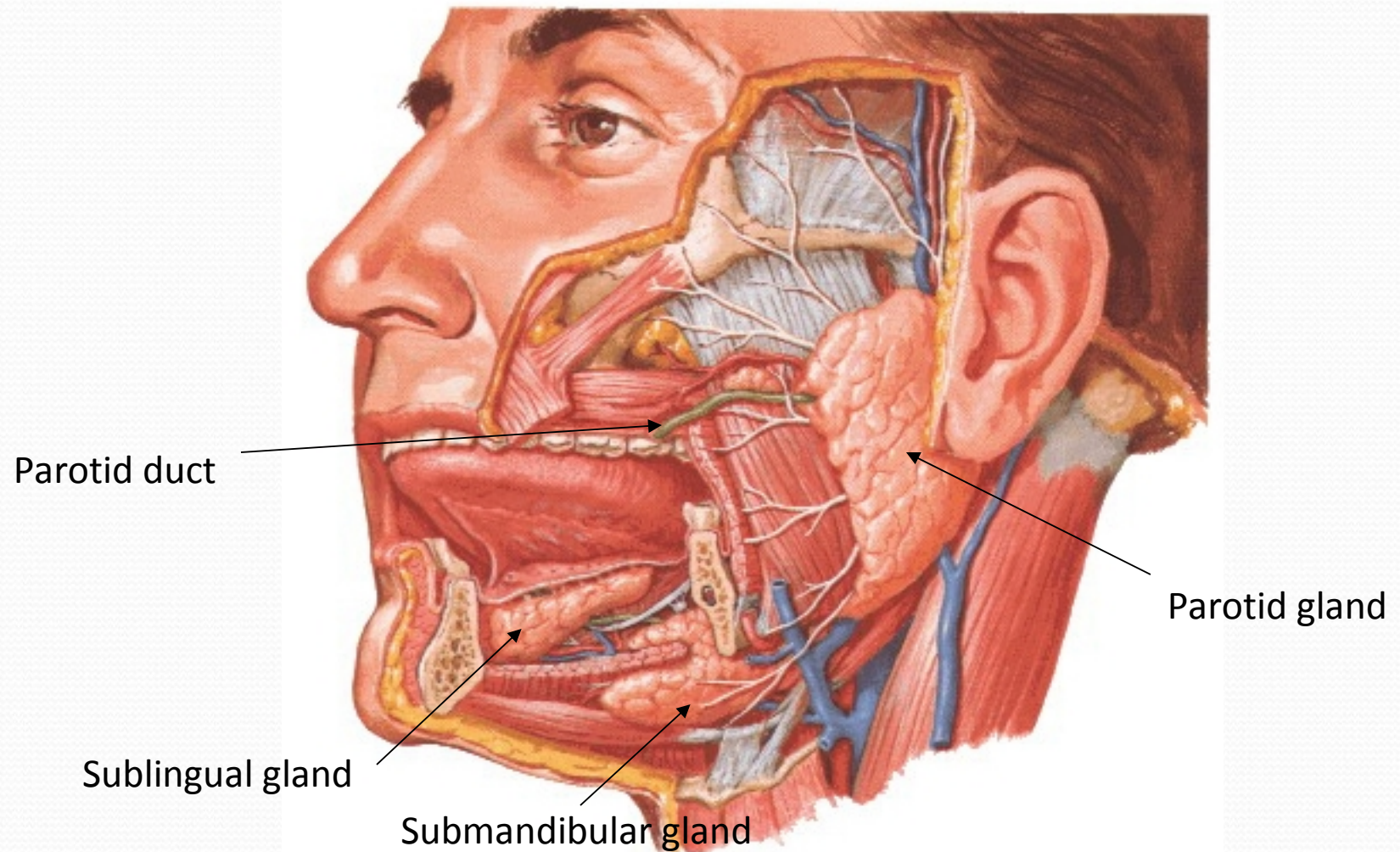
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# SURGICAL ANATOMY



# GLANDS

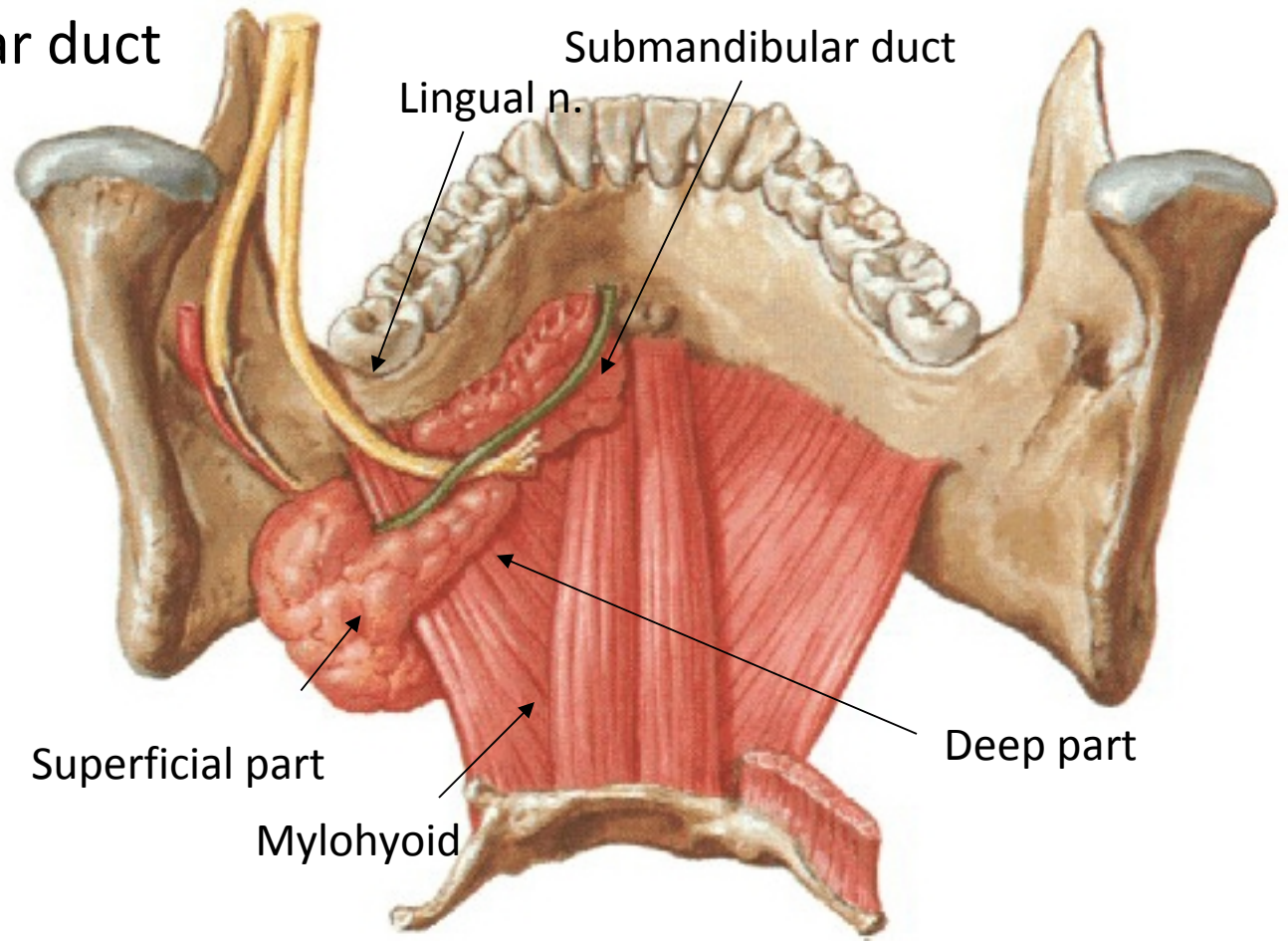
اللهم أفتح لنا أبواب فضلك ورحمتك





# Submandibular Parts

1. Superficial part
2. Deep part
3. Submandibular duct



# submandibular gland

## ➤ nerves related: مهمة

- inguinal n ( lies below it ) >> injury lead to pain reffered to tongue
- hypoglossal n (lies below it ) >> injury lead to motor effect as deviation of tongue to weak side
- cervical br. Of facial n ( lies superficial to it , supply platysma ms) >> injury lead to drooped angle of mandible

## ➤ opening: مهمة

- into mouth at side of frenulum of tongue on summit of sublingual papilla

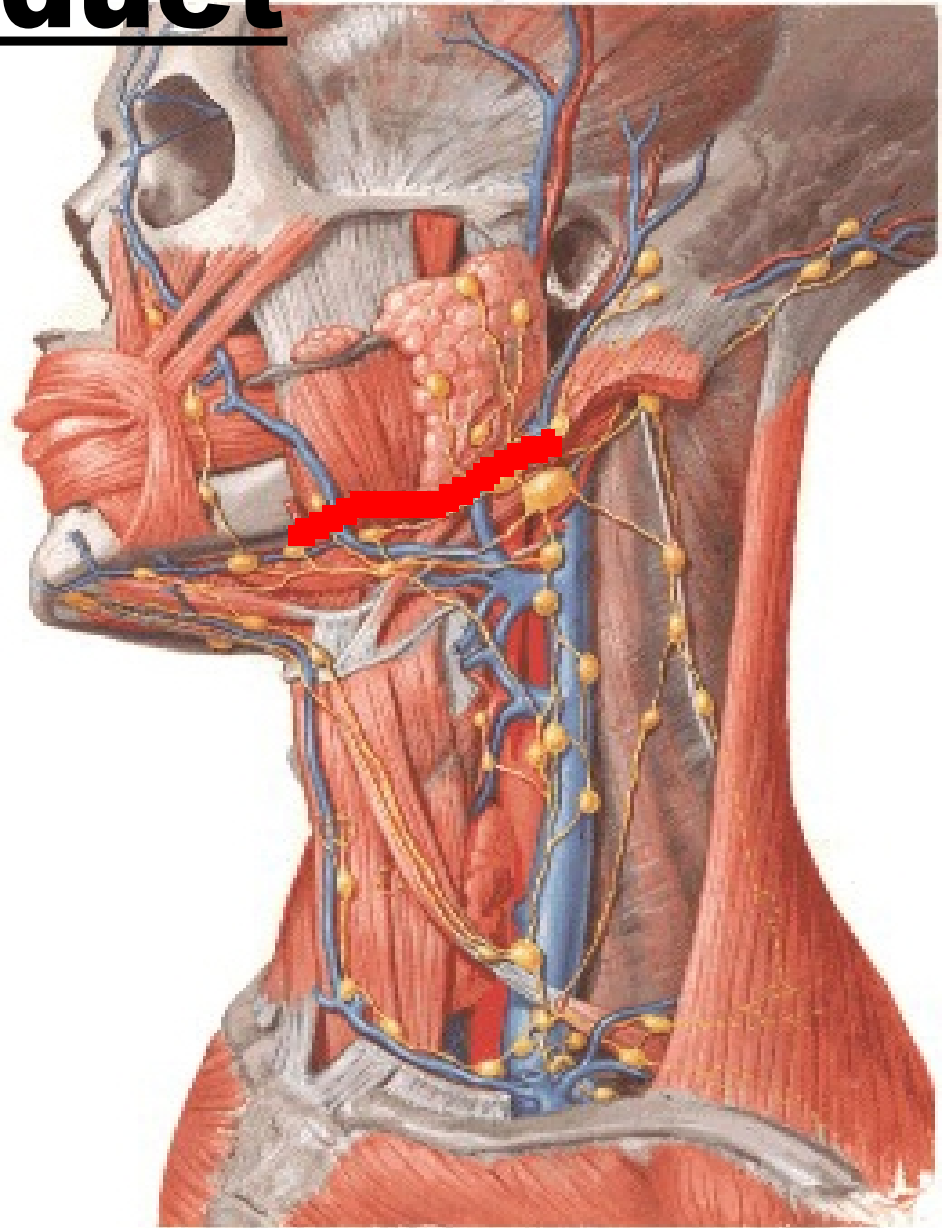
## ➤ ms : trapezius , masseter , sternomastoid

## ➤ External jugular v. ( over sterno mastoid ) : surgical importance is canulation

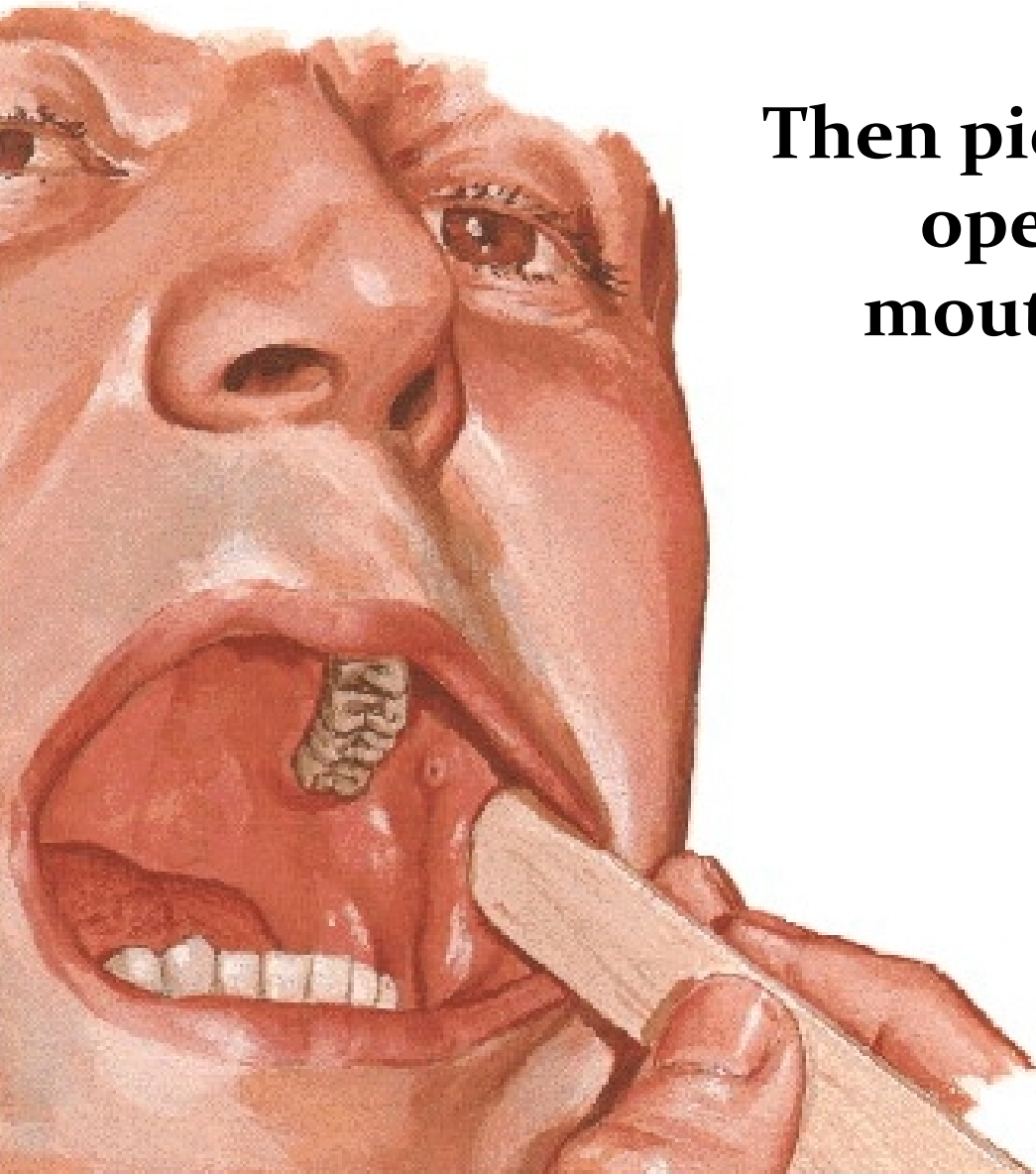


# carotid gland & duct

5 cm long &  
emerges from the  
anterior border &  
runs superficial  
to masseter m.



# **Parotid Duct opening**



**Then pierces the buccinator to  
open in the vestibule of  
mouth, opposite the upper  
2nd molar tooth**



# Parotid gland

## ✓ Parotid Duct :

### ■ Course

### ■ Opening : مهمة

- internal site : in vestibule of mouth opposite crown of 2<sup>nd</sup> molar tooth

- surface anatomy : middle 1\3 of line from tragus to angle of mouth

- importance : in acute parotitis there is redness around it & pus from opening & stone at it (GA > extraction by snip)

## ✓ Structures inside gland : كلهم مهمين

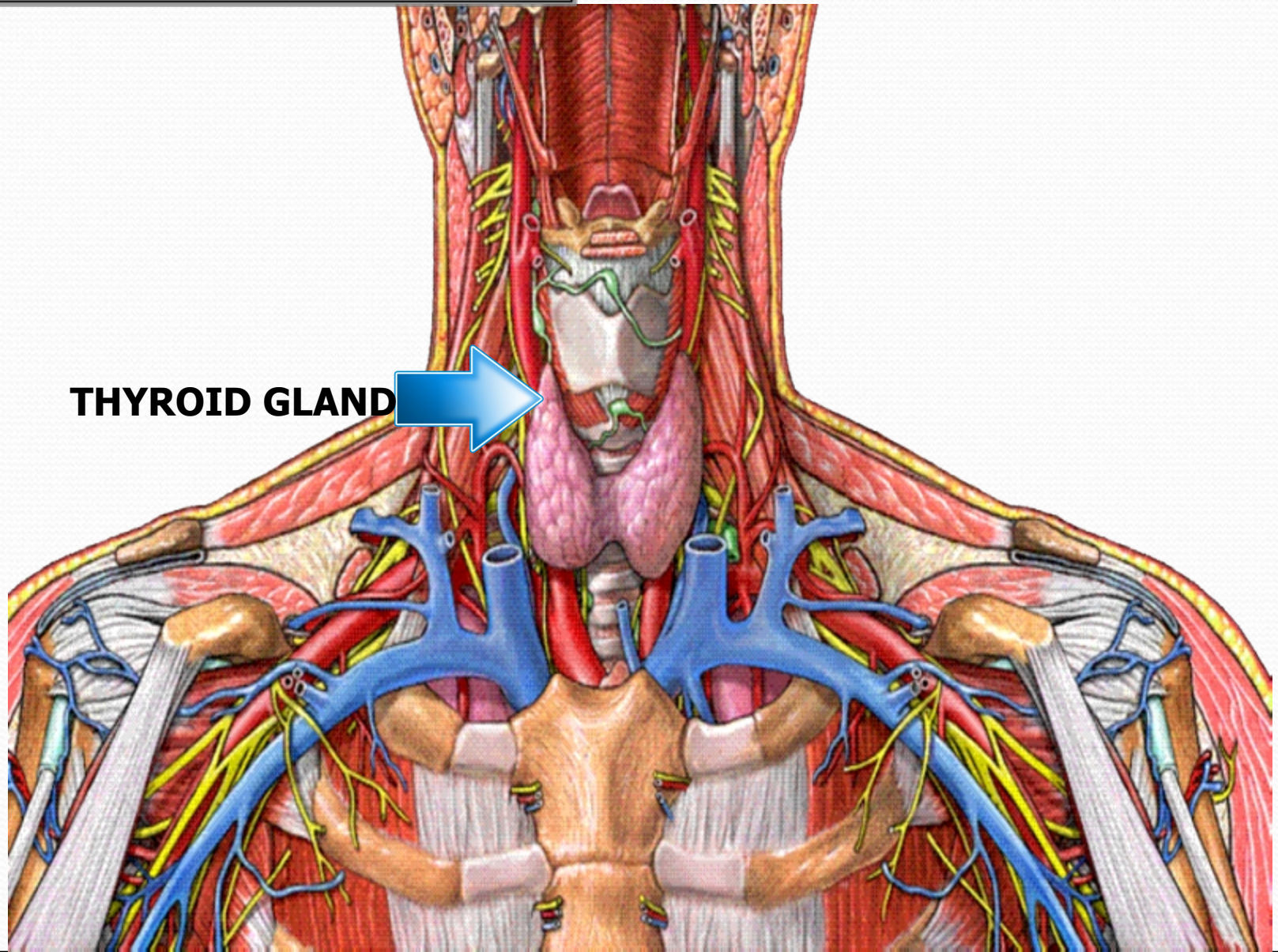
## ✓ Nerves related to gland :

- Facial nerve

- auriculo-temporal n “superficial to gland , responsible for secretion of saliva”: **Injury >> Frey's \$** : flusing & sweating over parotid gland due to union between it & sympathetic fibers >>> so any impulse to gland for salivation lead to associated flusing , sweating مهمة و جاللي



# ***THYROID GLAND***





**INTERNAL CAROTID**



**EXTERNAL CAROTID**



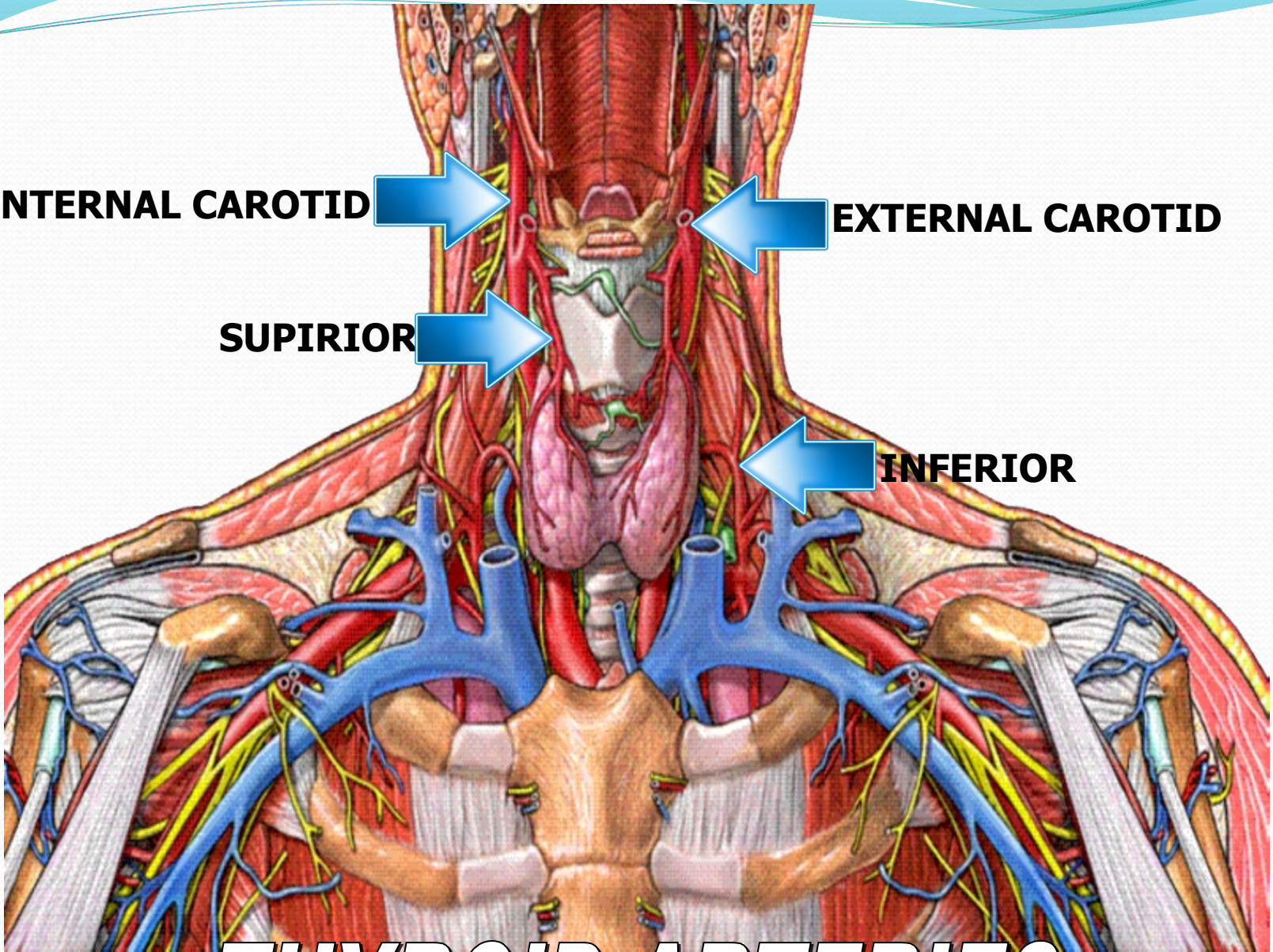
**SUPRIOR**



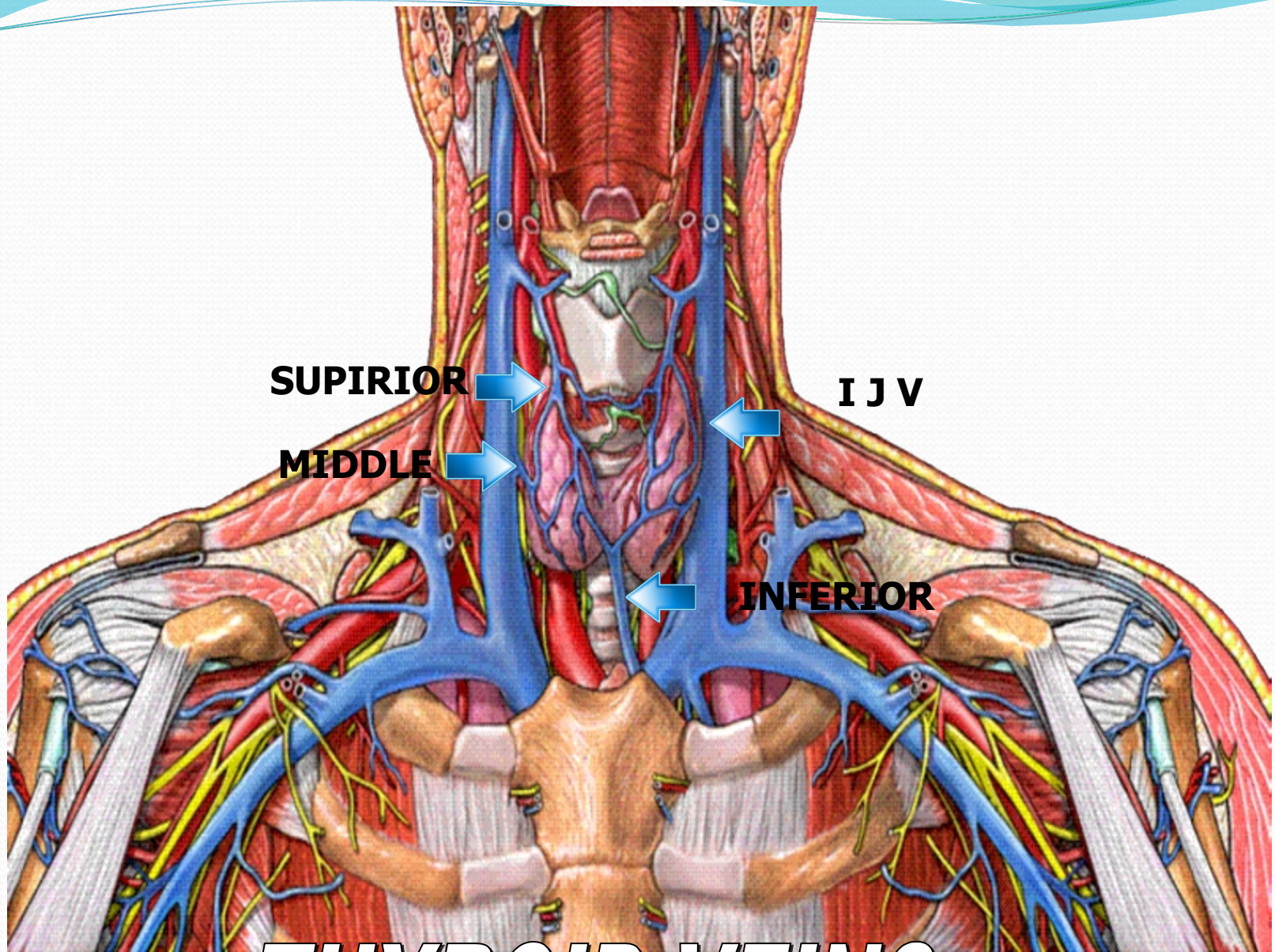
**INFERIOR**



***THYROID ARTERIES***







***THYROID VEINS***



# Thyroid gland

➤ Anatomy

➤ Blood supply

➤ Nerve related مهم جدا

# EXAMPLES OF EXAM

Q this structure is parotid duct which open at ..... \_  
\_\_\_\_\_

Q this structure is cervical branch of facial nerve to avoid injury u should open 2 fingers below lower edge of mandibular ramus if injured cause drooped angle of mandible

Q this structure is submandibular duct which open into  
.....

Q injury of lingual n. lead to ....., while hypoglossal n. lead to .....

Q this structure is thyroid gland , nerves related to this structure are recurrent laryngeal & external laryngeal n

Q injury of external lead to loss of high pitched voice , While bilateral partial injury of recurrent lead to stridor

Q surgical importance of trachea-oesophageal branches is to prevent gangrene when thyroid artery r ligated



# HERNIA

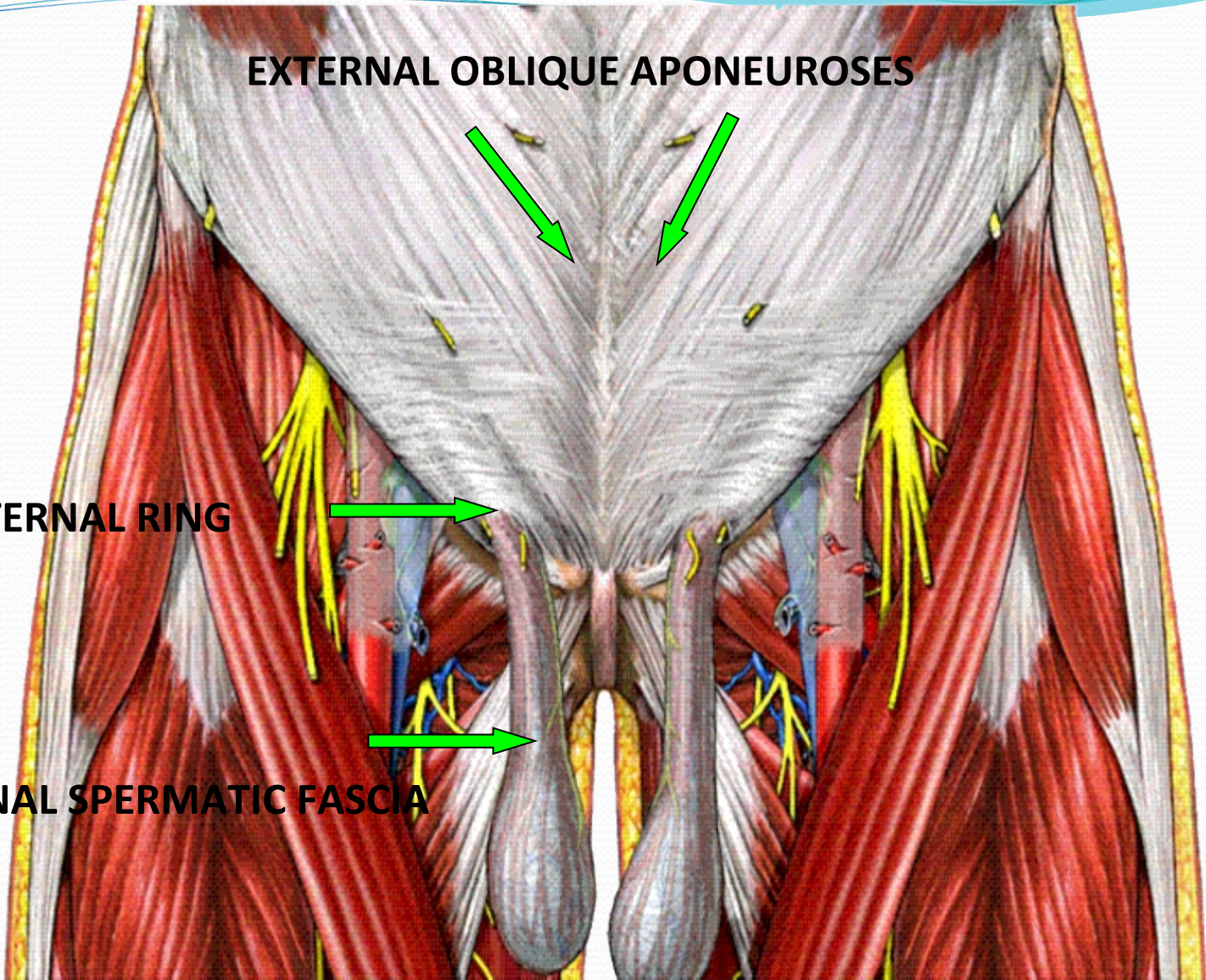
سبحان الله و بحمده ،،، سبحان الله العظيم



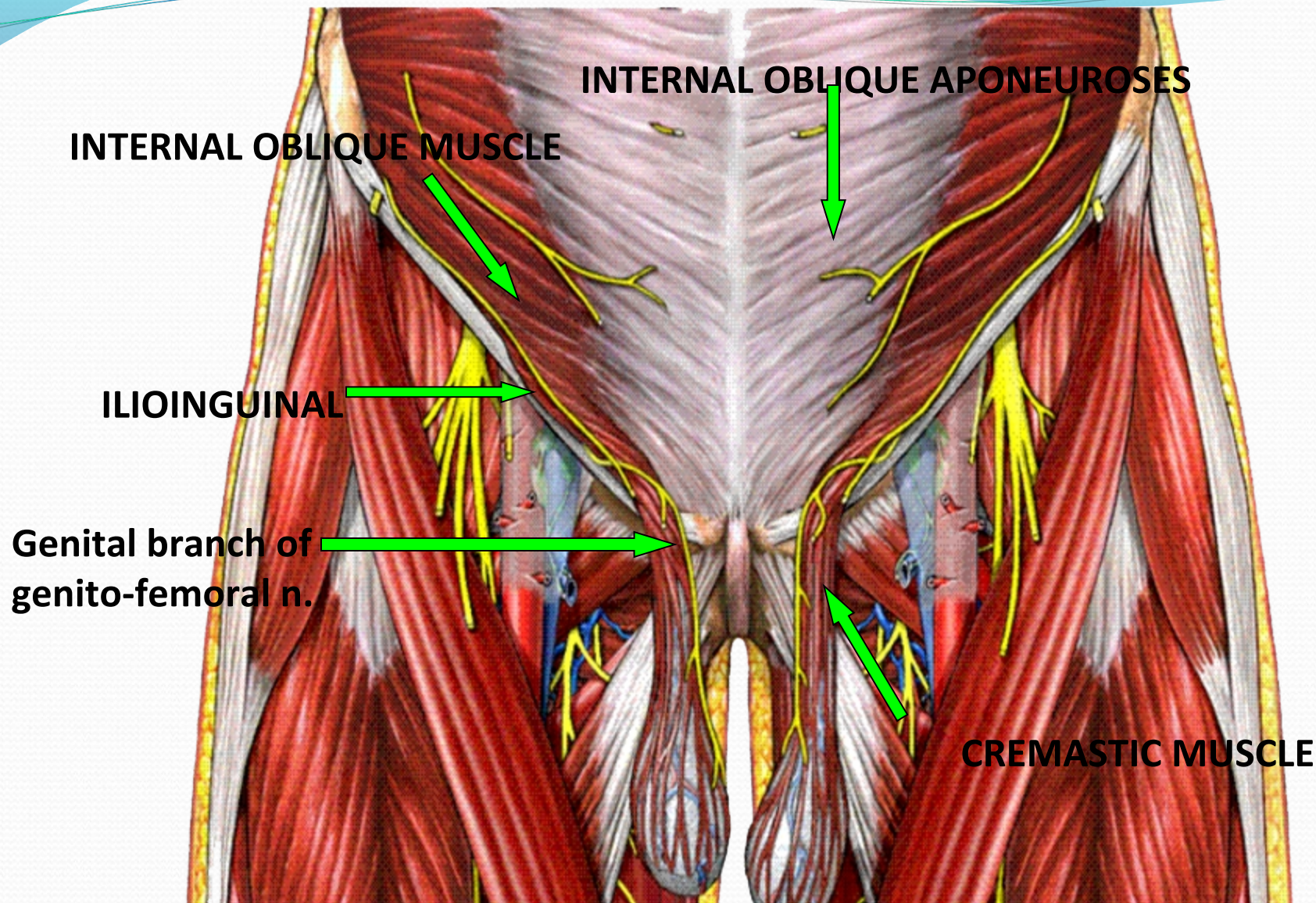
**EXTERNAL OBLIQUE APONEUROSES**

**EXTERNAL RING**

**EXTERNAL SPERMATIC FASCIA**







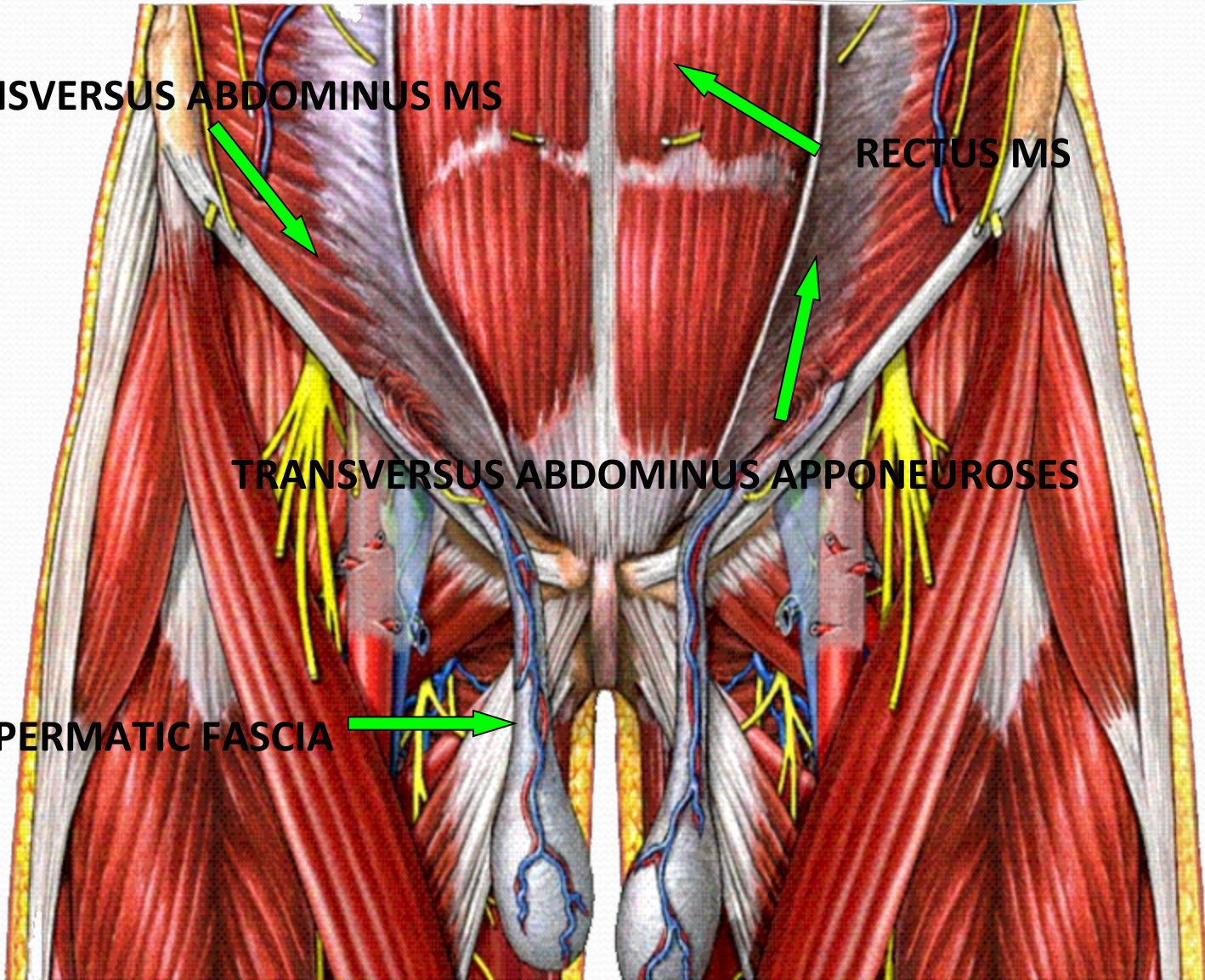


**TRANSVERSUS ABDOMINUS MS**

**RECTUS MS**

**TRANSVERSUS ABDOMINUS APPONEUROSES**

**INTERNAL SPERMATIC FASCIA**





**FASCIA TRANSVERSALIS**



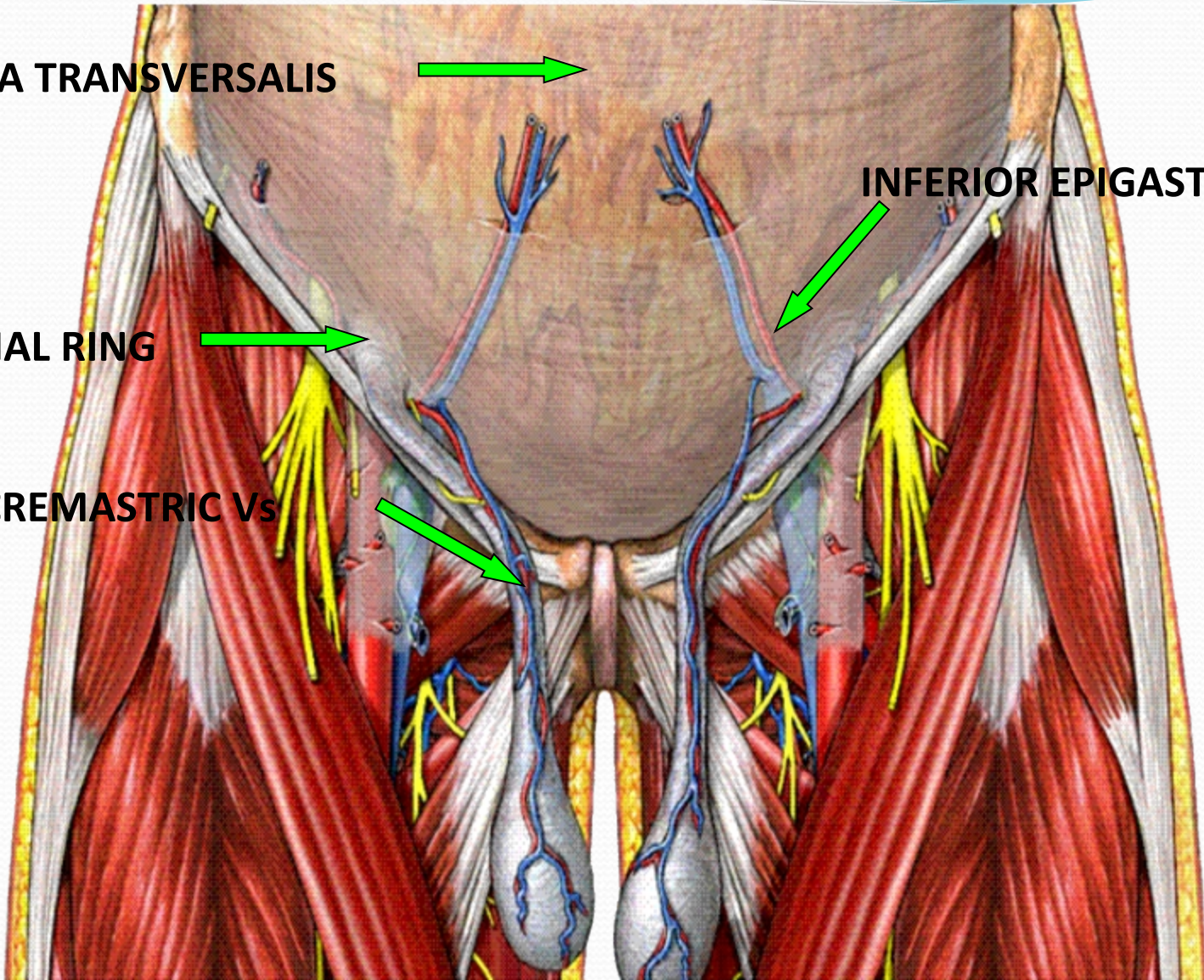
**INFERIOR EPIGASTRIC Vs.**



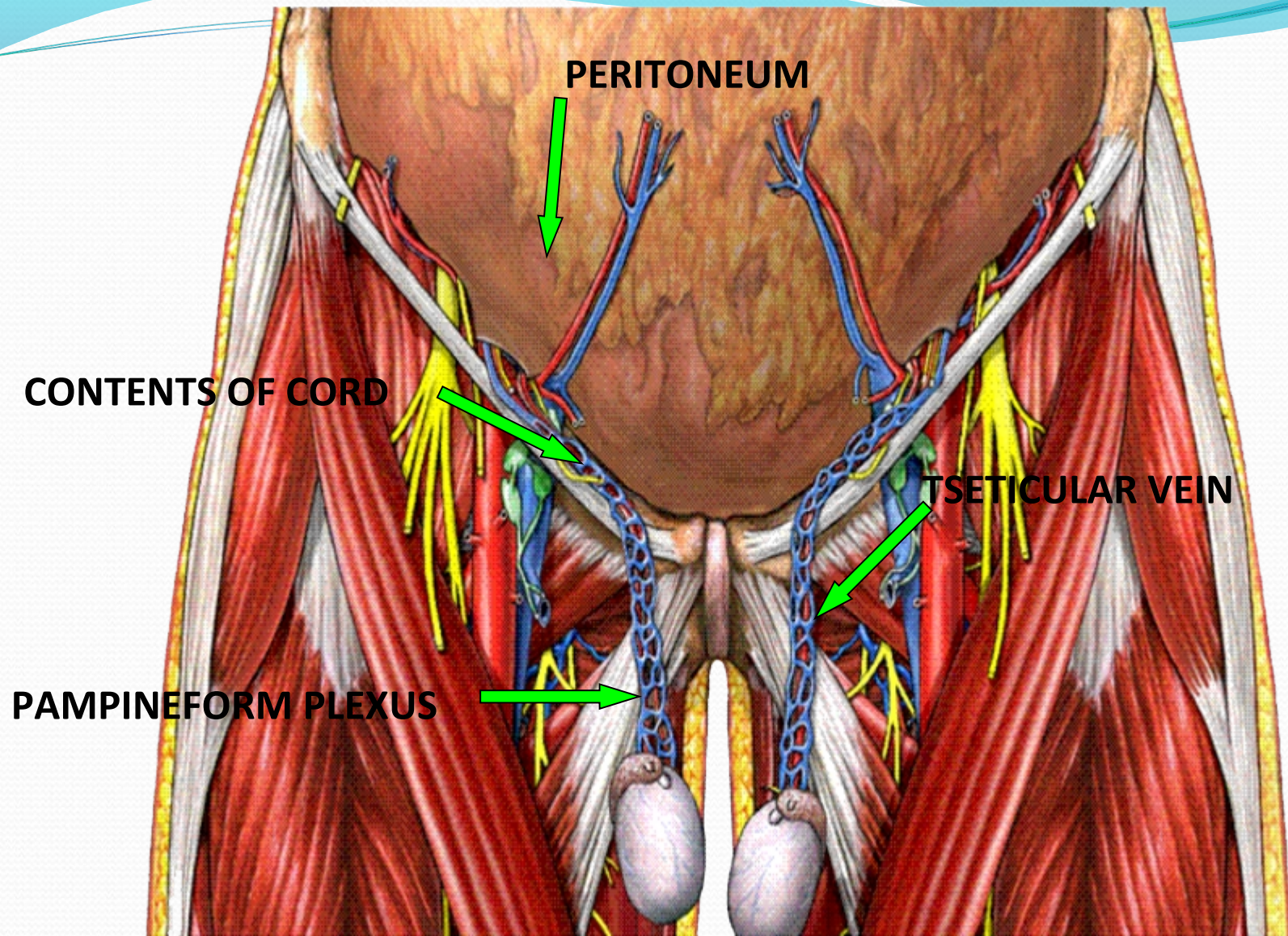
**INTERNAL RING**



**CREMASTRIC Vs**

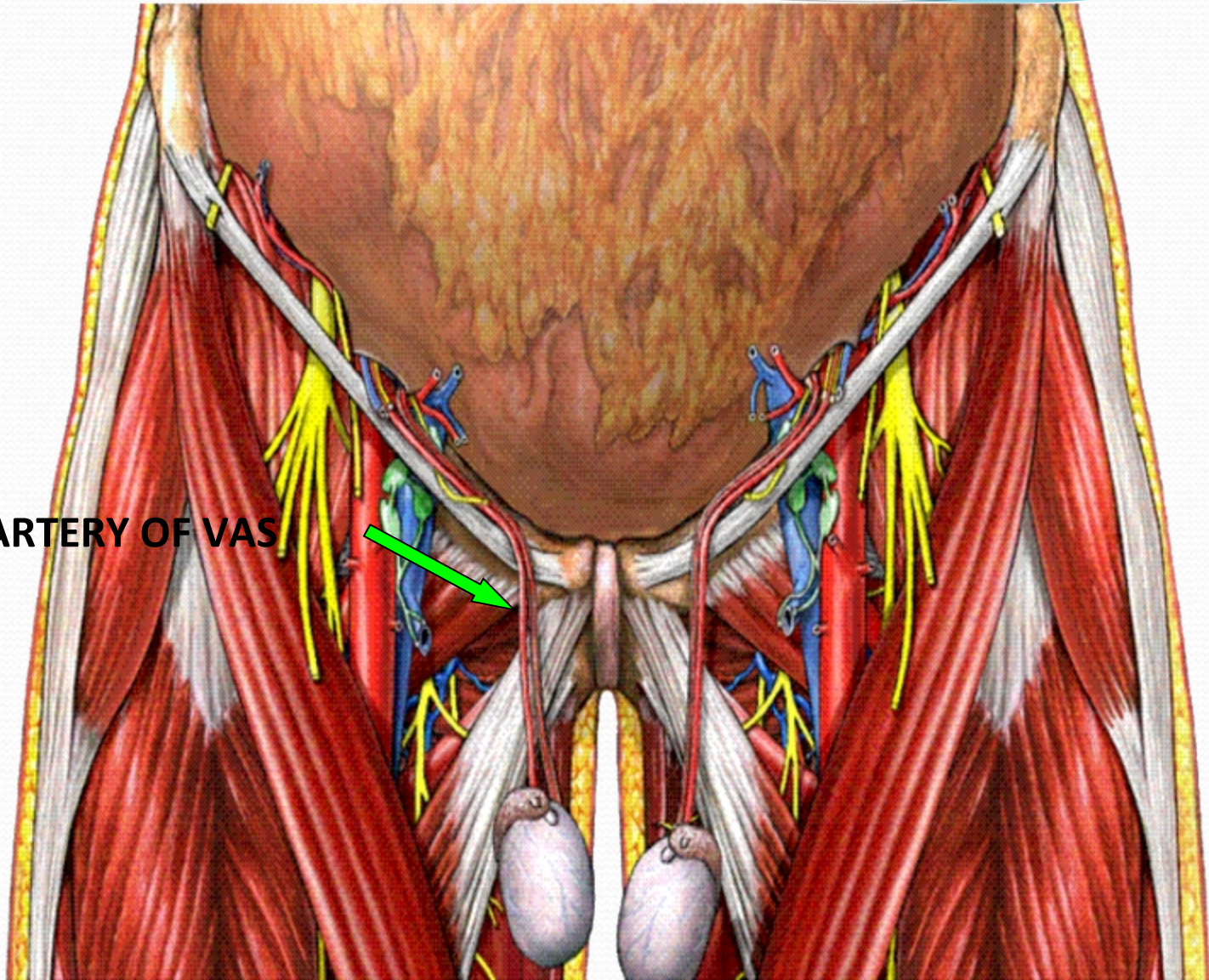




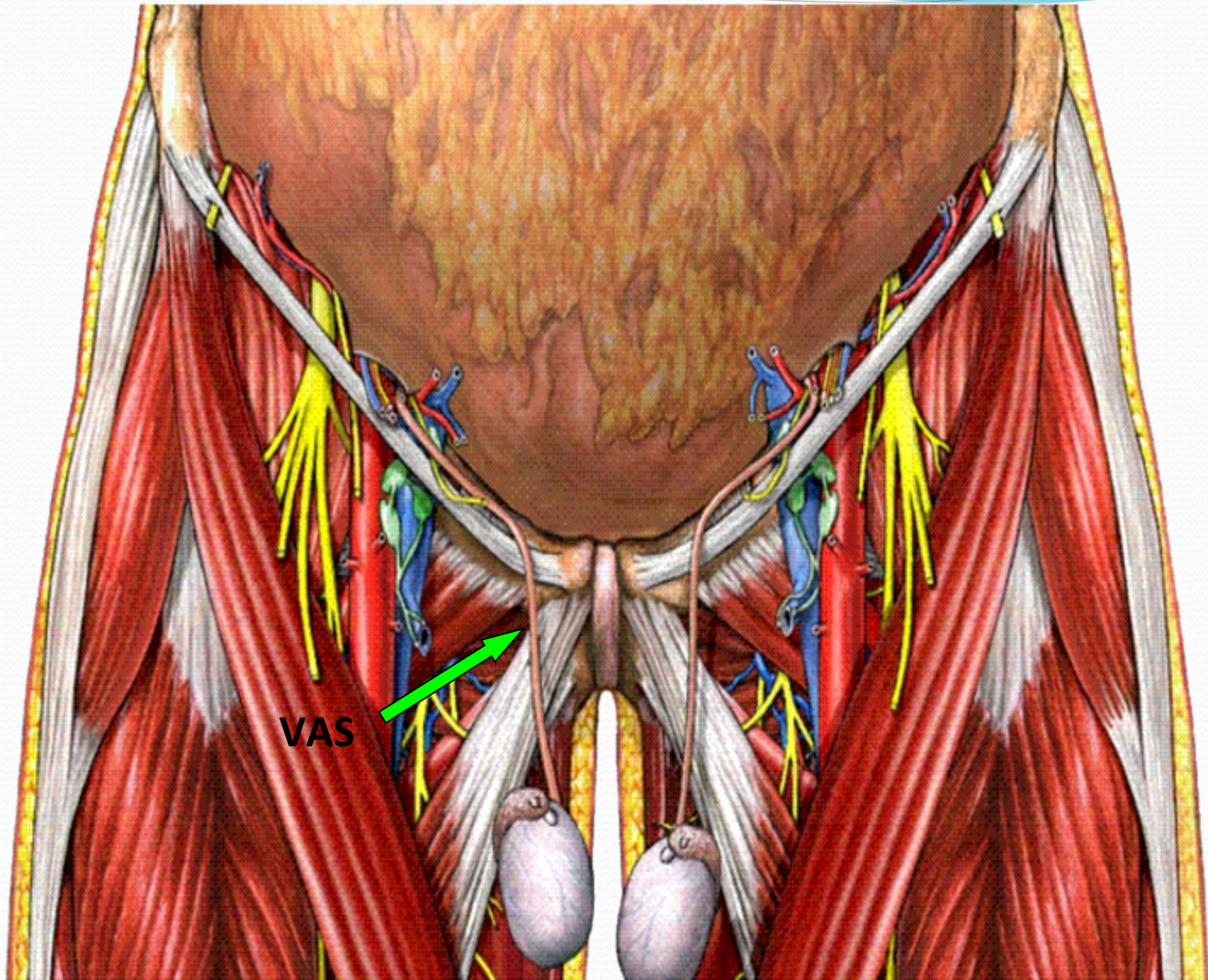




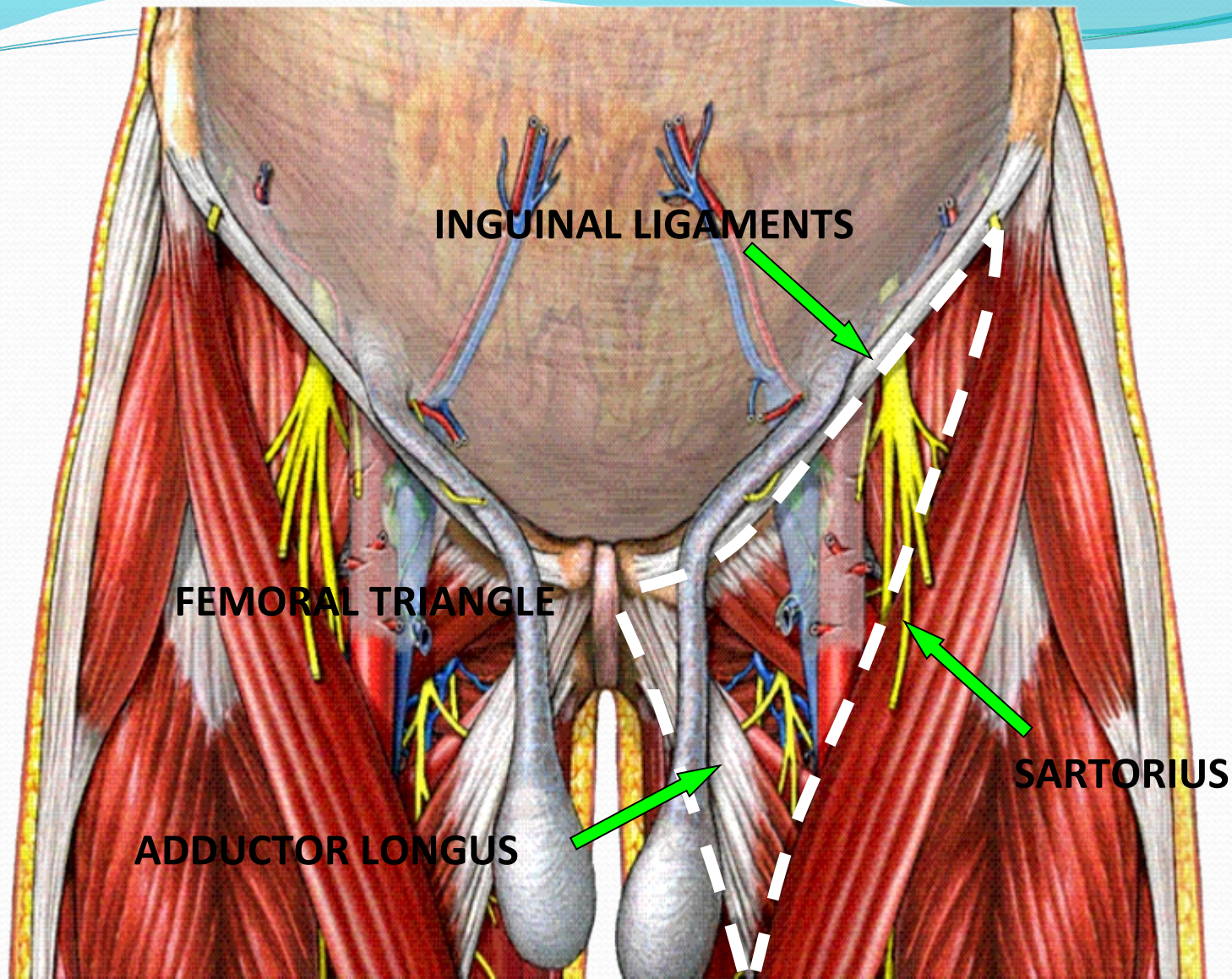
**ARTERY OF VAS**









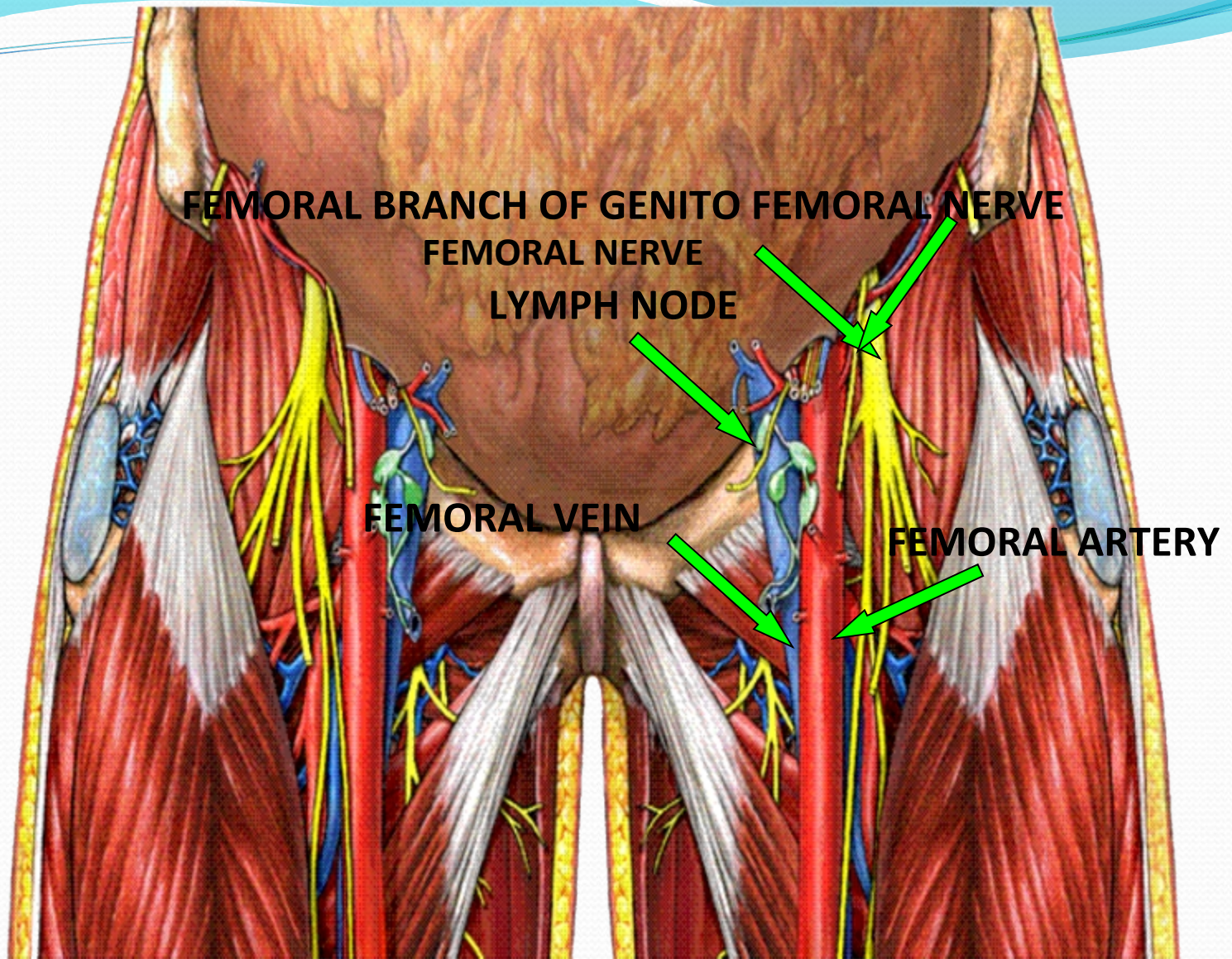




[illegible]

## FEMORAL SHEATH







- Def. of EXTERNAL & INTERNAL RING & inguinal ligament & conjoint tendon
- Nerves related :
- Ileo-inguinal n ( supply conjoint tendon ) : injury lead to direct inginal hernia
- Genital br. Of genitofemoral n (supply Cremasteric ms & fascia )
- Spermatic cord covering



# EXAMPLES OF EXAM

Q pupic tubercle can be detected by .....

Q muscle of floor of femoral triangle are ..... ,  
..... , .....

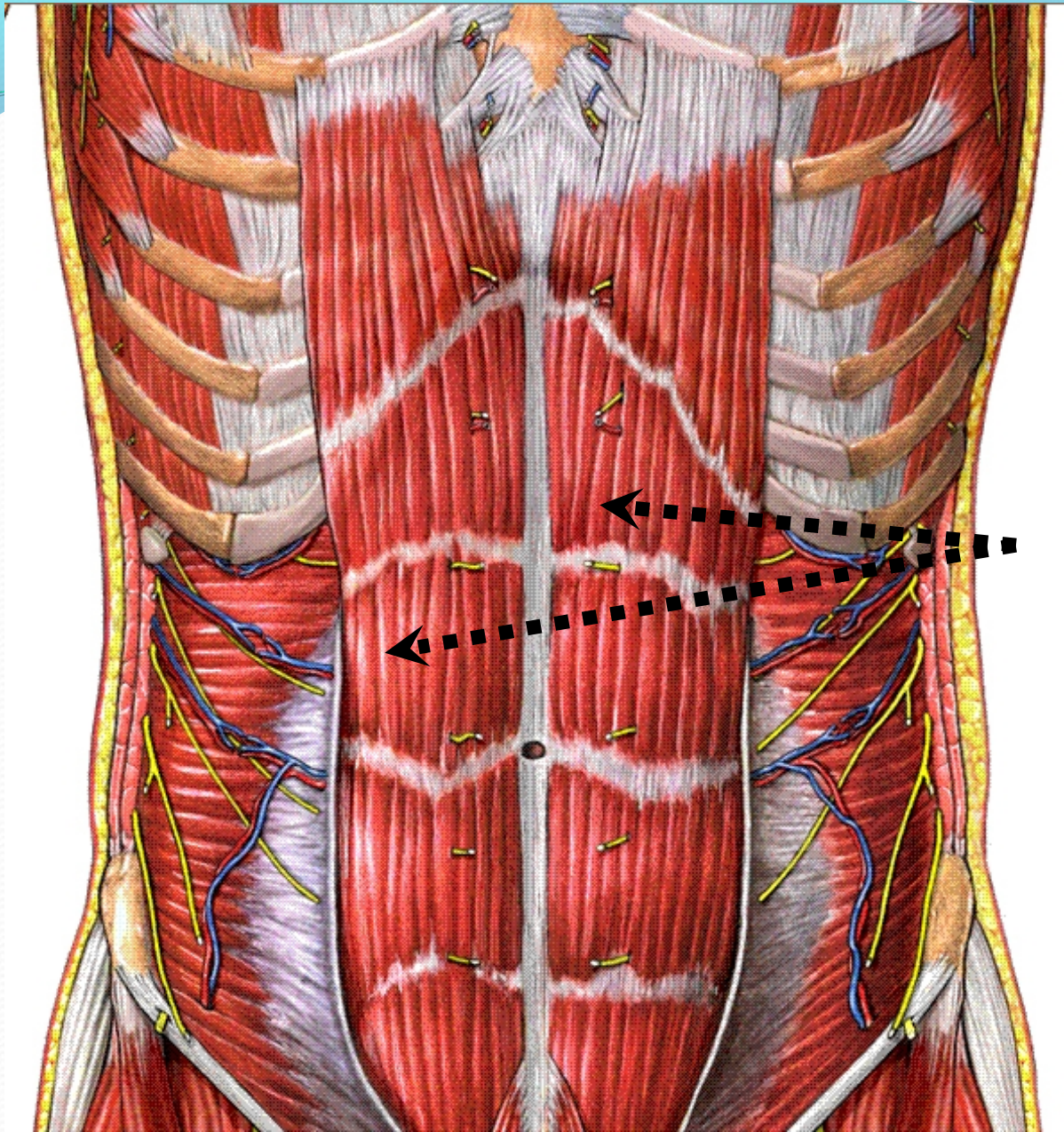
Q this vessel r inferior epigastric vessel which present at  
lateral border of hasselbach triangle which is site of  
herniation of direct inguinal hernia



# RECTUS MUSCLE & UMBILICUS

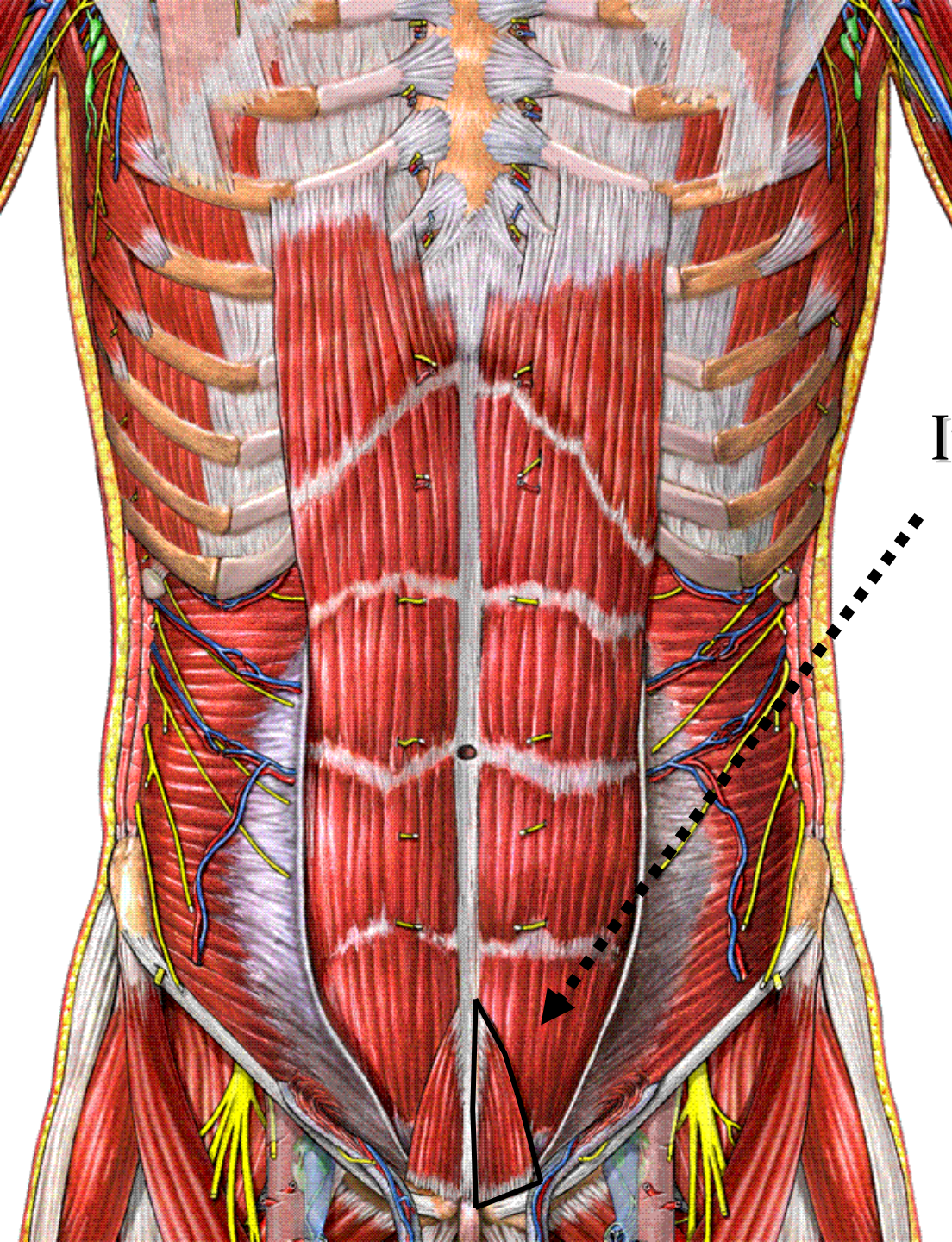
لا اله الا أنت سبحانك انى كنت من الظالمين





4- Rectus Muscle





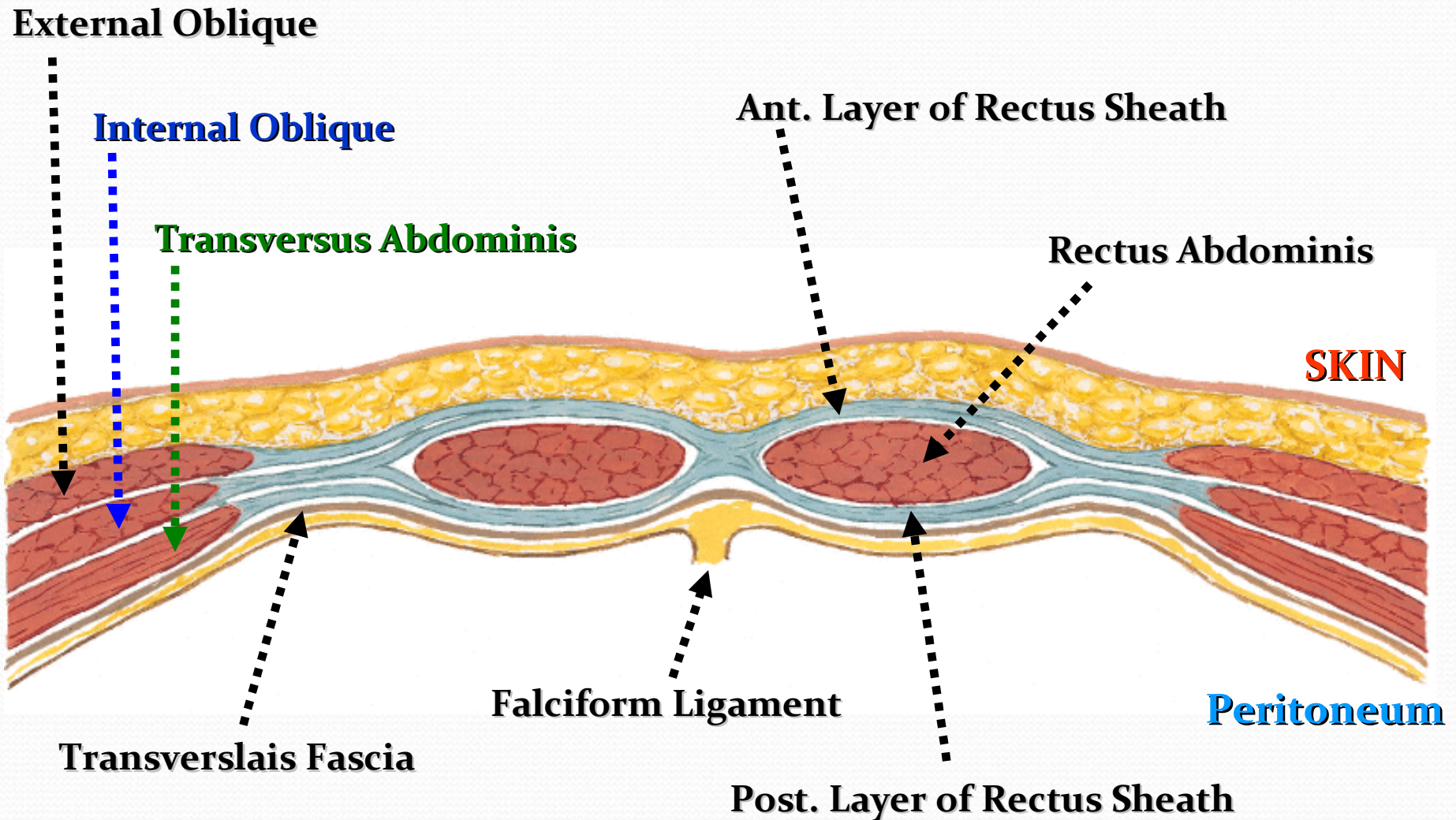
## Pyramidalis Muscle

It is a landmark of linea  
alba intraoperative



## Above Arcuate Line

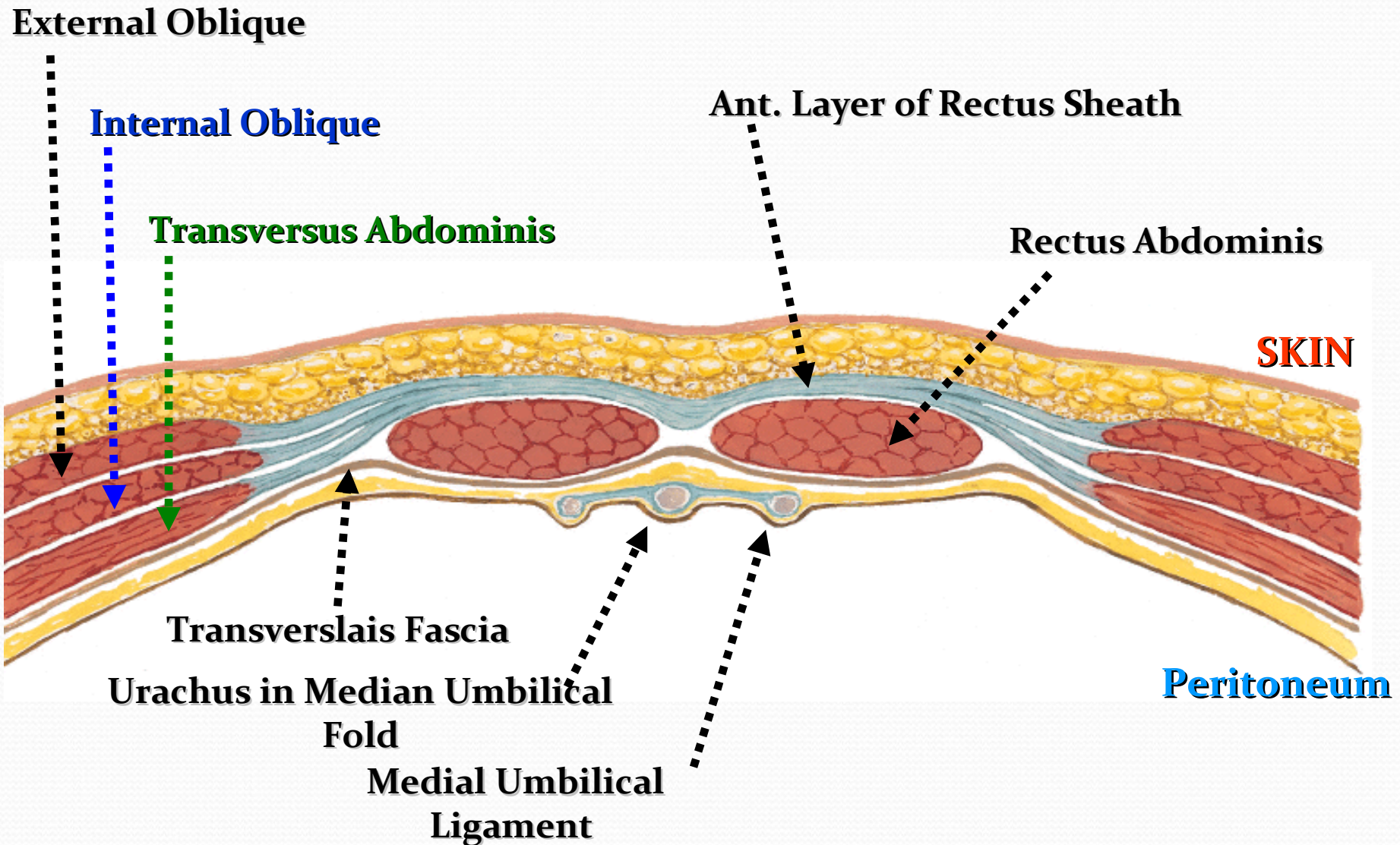
# Rectus Sheath



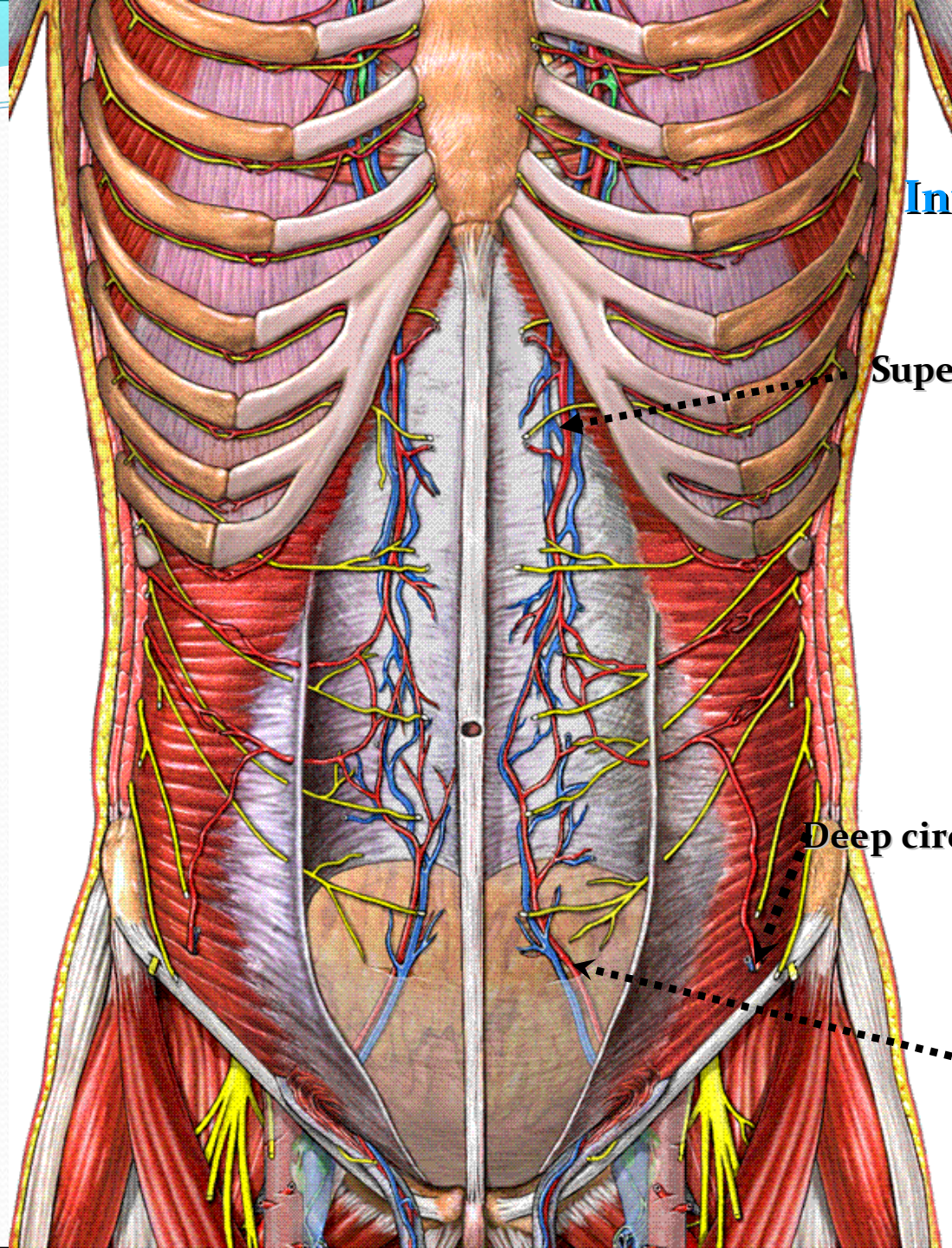


## Below Arcuate Line

# Rectus Sheath







- I -

**Internal Mammary a.**

Superior epigastric a.

- III -

**External Iliac**

**a.**

Deep circumflex iliac a.

Inferior epigastric a.



# Rectus muscle

- ✓ Surgical importance : >> 4 <<
  - Myocutaneous flap in plastic surgery
  - Segmental nerve supply ( as embriologically developed from multiple dermatoms )
  - Ant. , posterior sheath , so if trauma occur > hematoma > intersection
  - Paramedian incision is better than kocher incision as it's has trap door effect
- ✓ Pyramidal muscle : land mark of midline = linea alba
- ✓ Inferior & superior epigastric vessels



# Umbilicus

- Nerve supply : T10 so referred pain from appendix
- Lymphatic drainage : bilateral axillary & bilateral inguinal





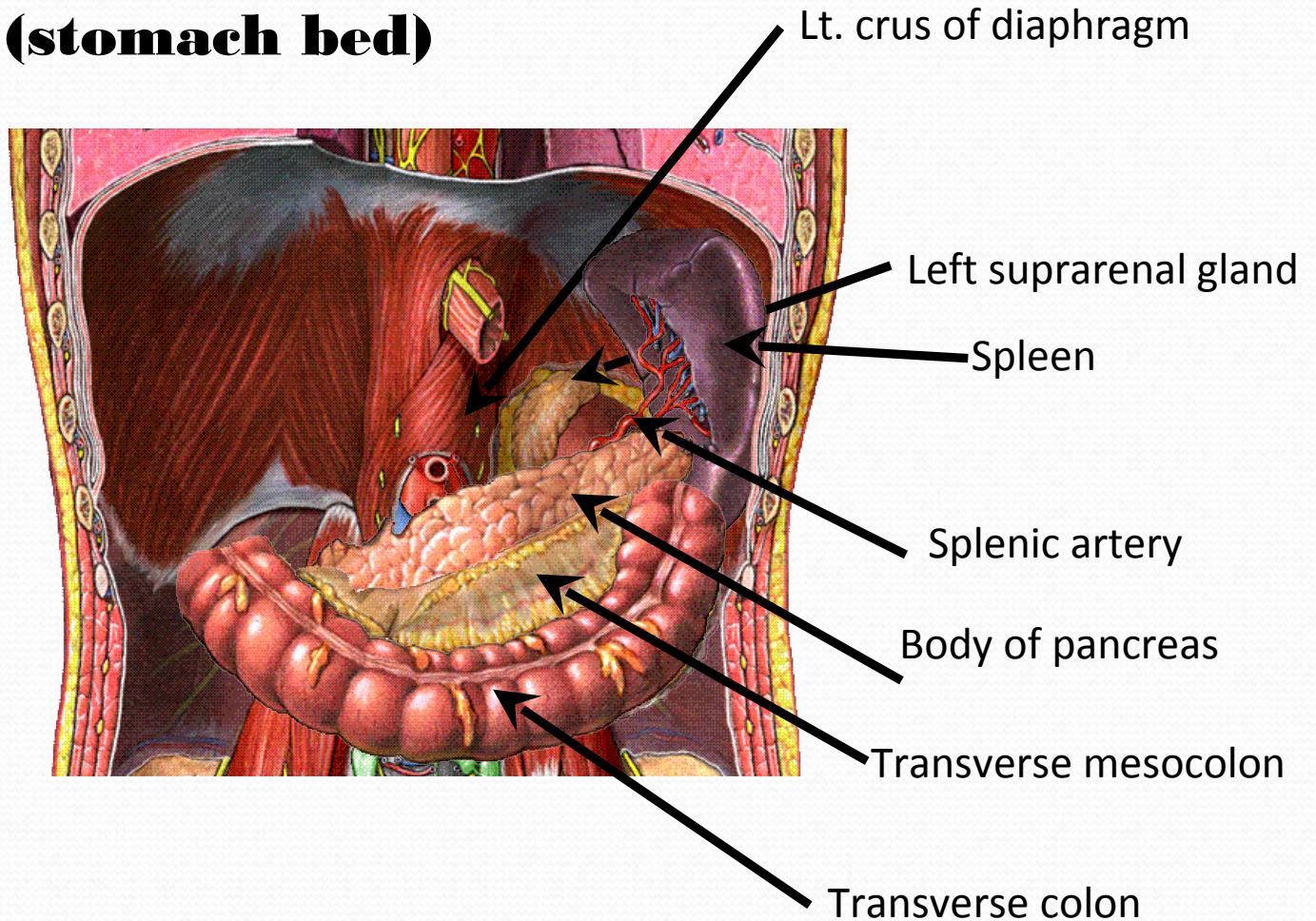
# STOMACH

لا اله الا الله



# Relations

## Posterior (stomach bed)





# Blood supply

Prepyloric vein of Mayo

It is an intraoperative landmark of pylorus

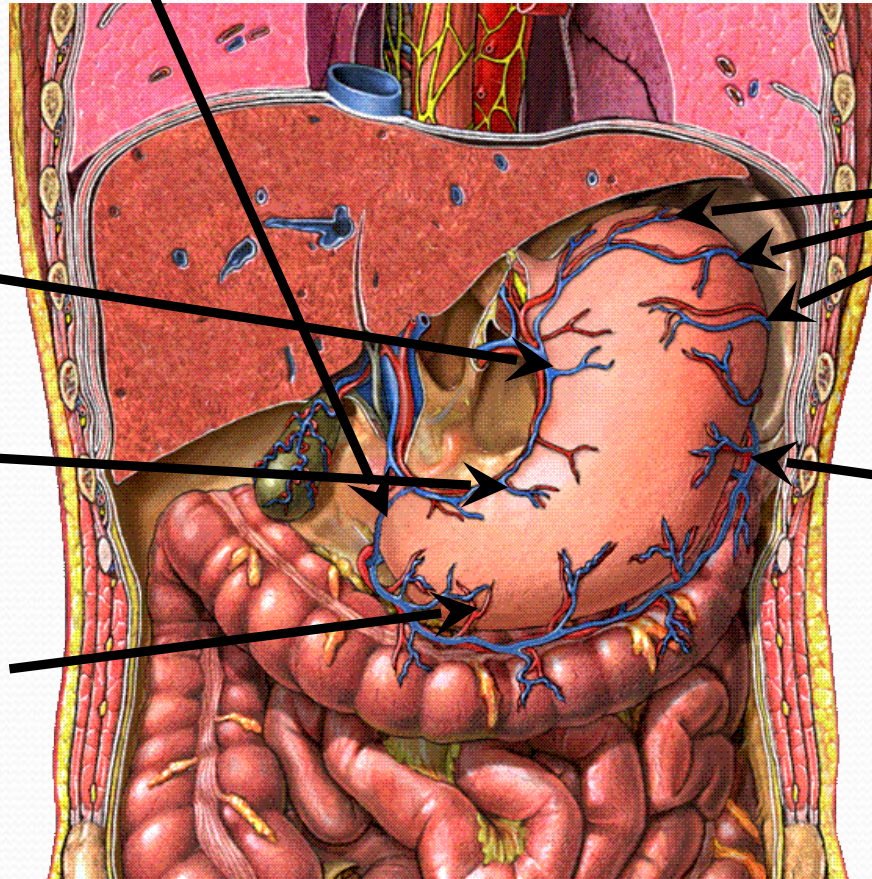
Lt. gastric

Rt. gastric

Rt. gastroepiploic

Short gastric

Lt. gastroepiploic





# Stomach

✓ Blood supply مهمة جدا

- Important in :

1. Splenectomy with ligation of vessels till incisura langularis
2. Gastric pull up to chest ( inferior vessel are elastic )

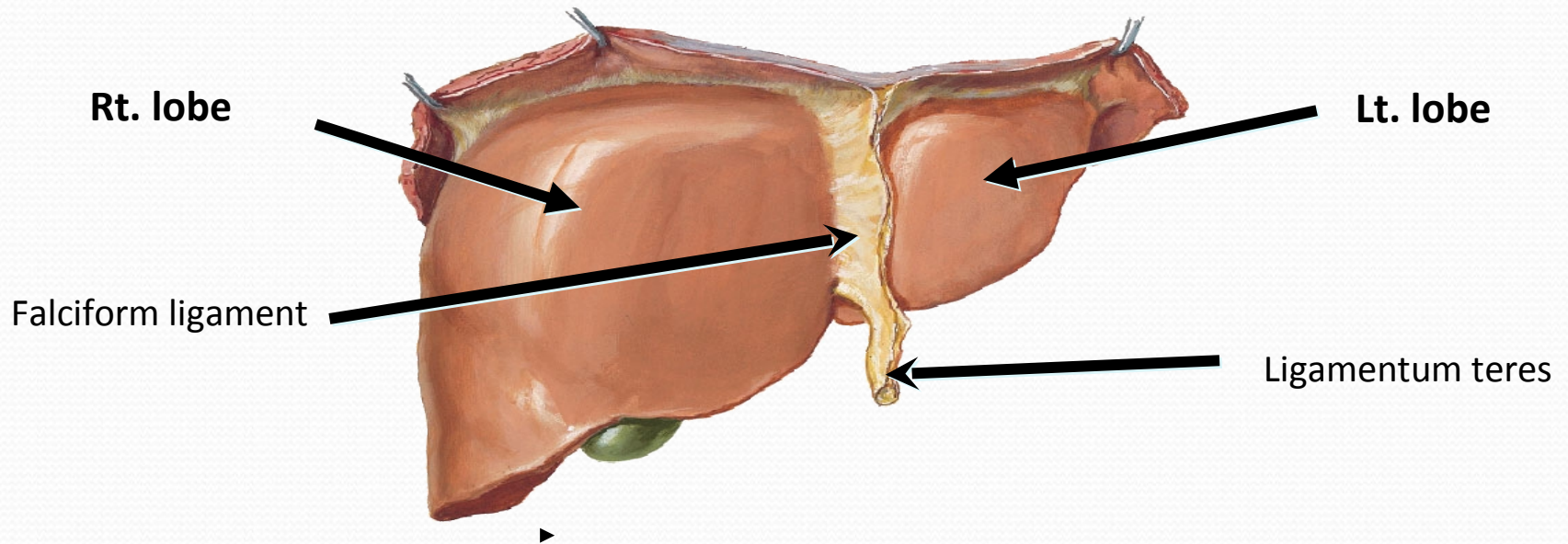


# LIVER

اللهم صلّ على محمد

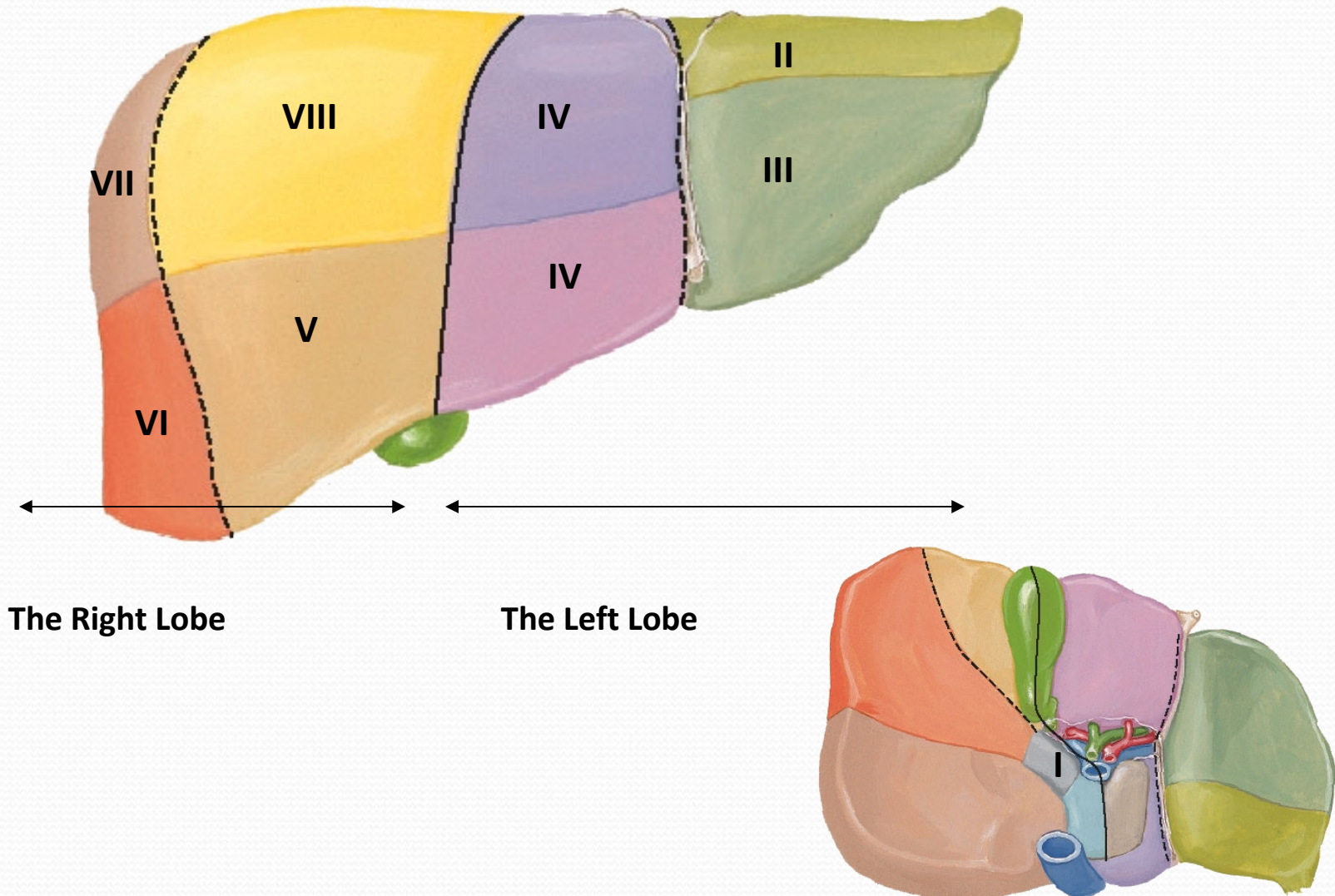


# Anatomical Lobes





# Liver Segmentation

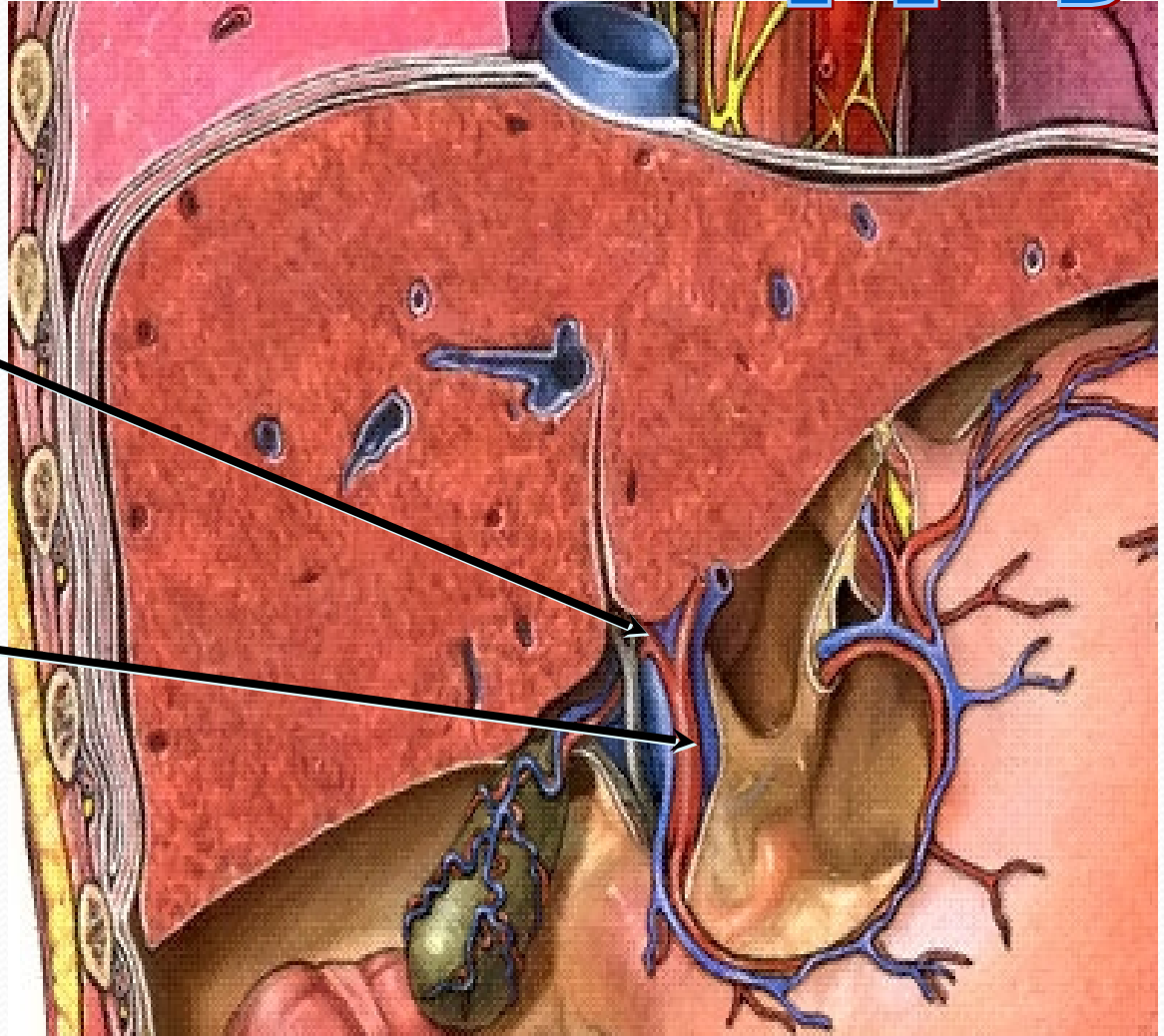




# Blood Supply

Portal v. 70%

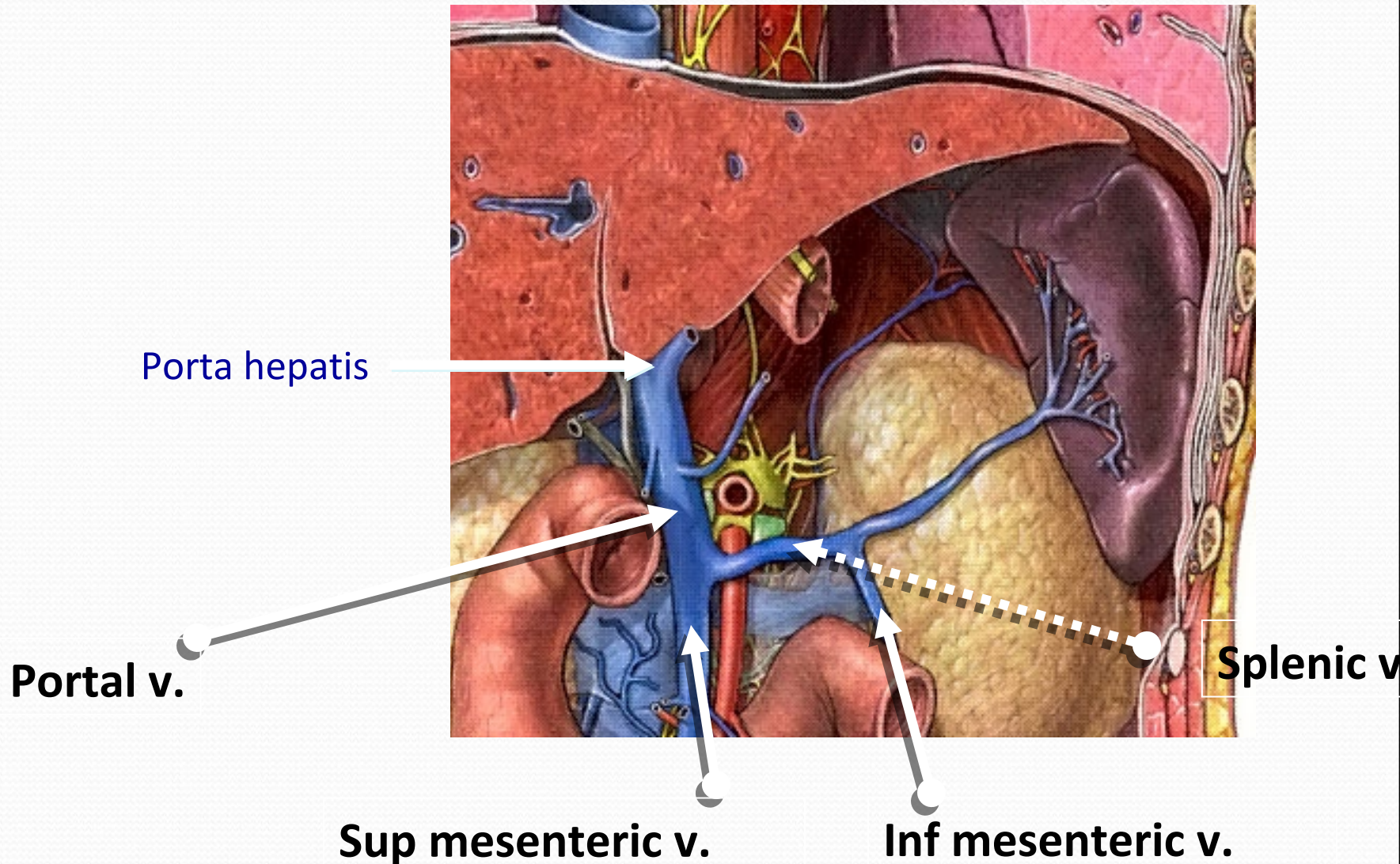
Hepatic a. 30%





# Origin & End

## Portal Vein

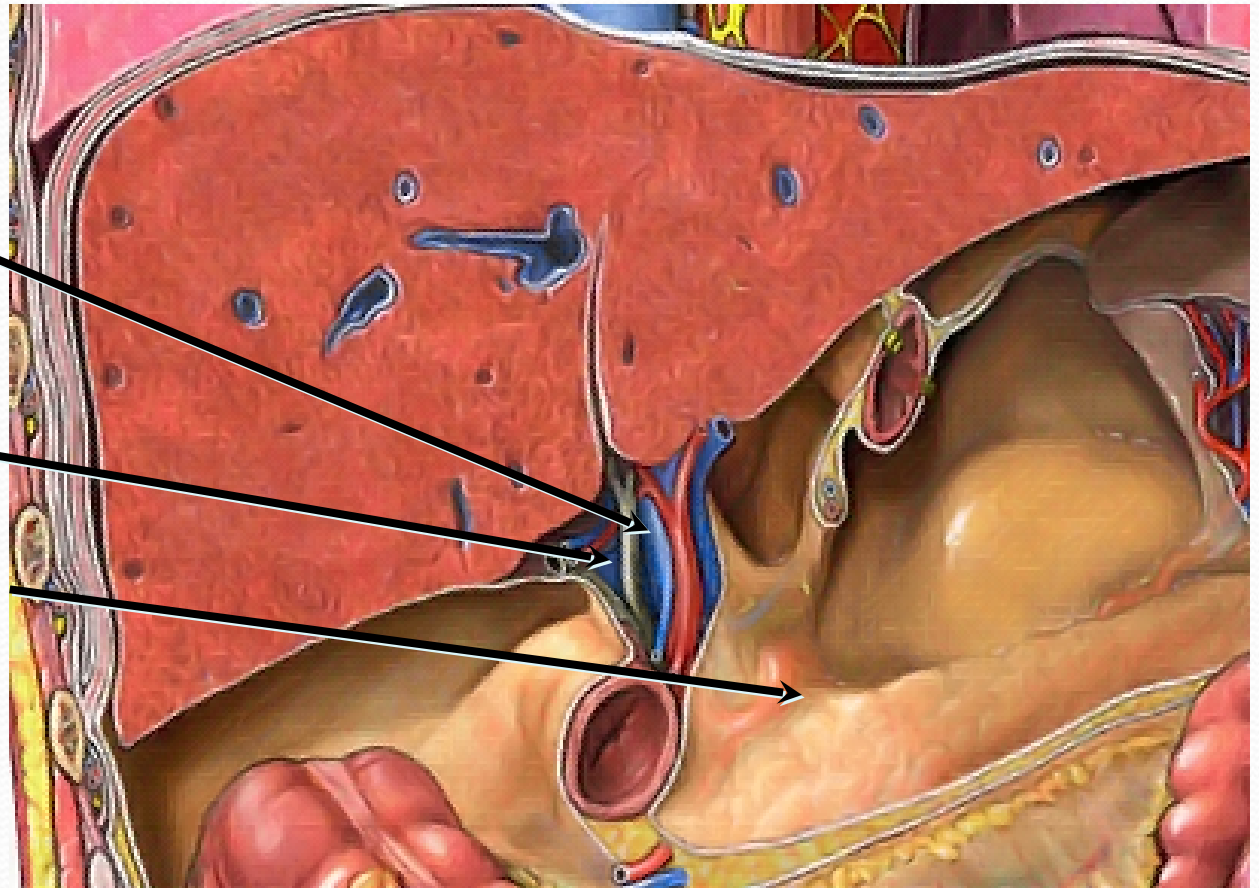




Portal v.

Bile duct

Hepatic a.





# Liver

## ➤ Liver segments *أقسام*

- Liver divided into rt. & lt lobes by falciform ligament & ligamentum teres
- Right lobe divided by “ imaginary line from gall bladder bed to IVC

## ➤ Liver blood supply

## ➤ Porta vein : dt fusion of splenic v. & superior mesentric

## ➤ Liver fixed in place by IVC , ligaments , intra-abdominal pr. & visceral pr.



# EXAMPLES OF EXAM

Q liver divided into 8 segments acc to hepatic vein  
branches جاللیلیلیلیلیلیلیلیلیلیلیلیلیلیلیلی

Q vagus at oesophagus give 3 branches are gastric ,  
hepatobiliary & anterior nerve of laterjet

Q inferior mesenteric v. open at splenic v



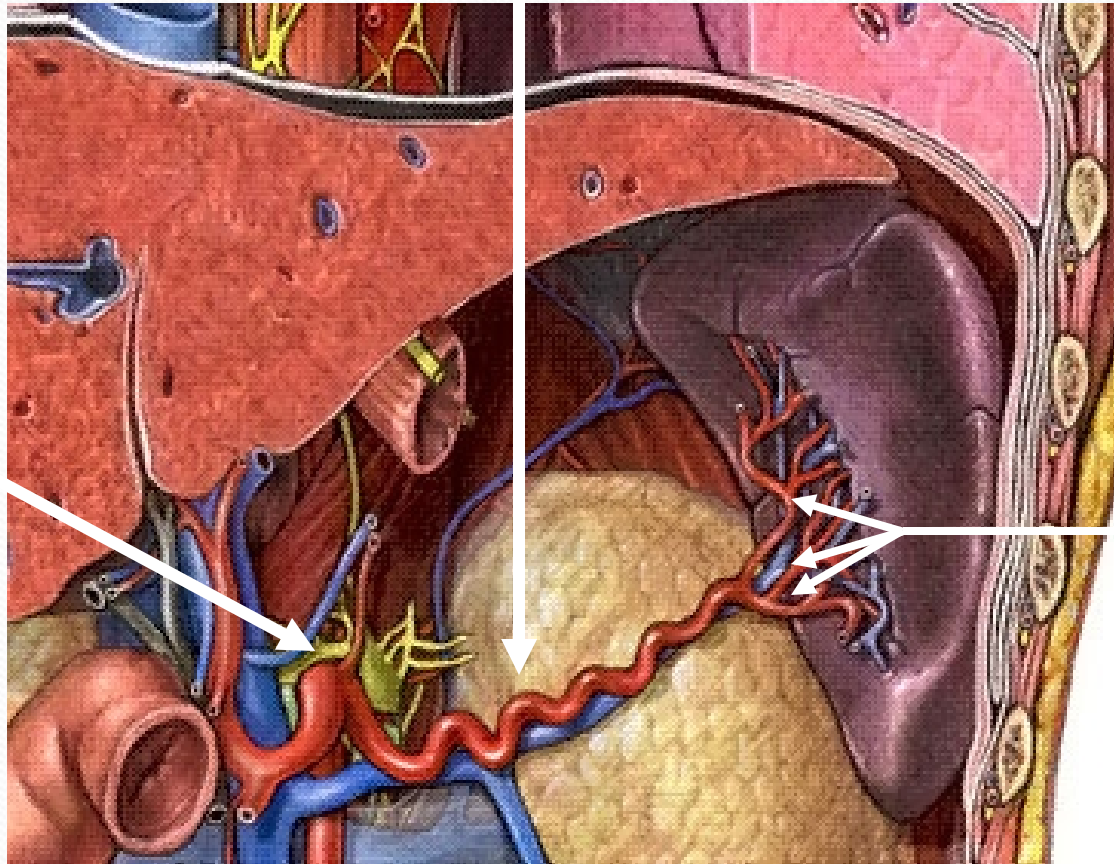
# SPLEEN

سبحان الله والحمد لله ولا اله الا الله والله أكبر



## Splenic artery

Celiac  
trunk



Terminal  
branches



# PANCREASE

حَسْبُنَا اللَّهُ سَيُؤْتِينَا اللَّهُ مِنْ فَضْلِهِ إِنَّا إِلَى اللَّهِ رَاغِبُونَ

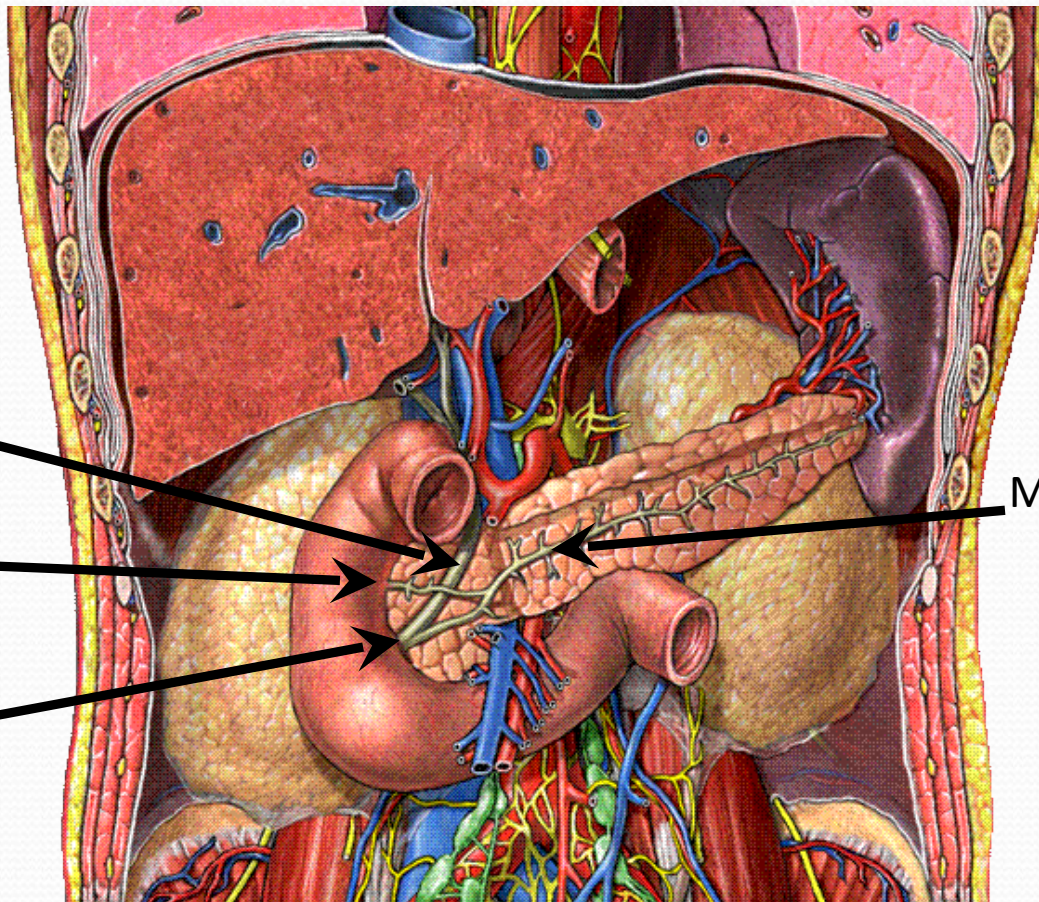


C.B.D

Accessory  
pancreatic duct

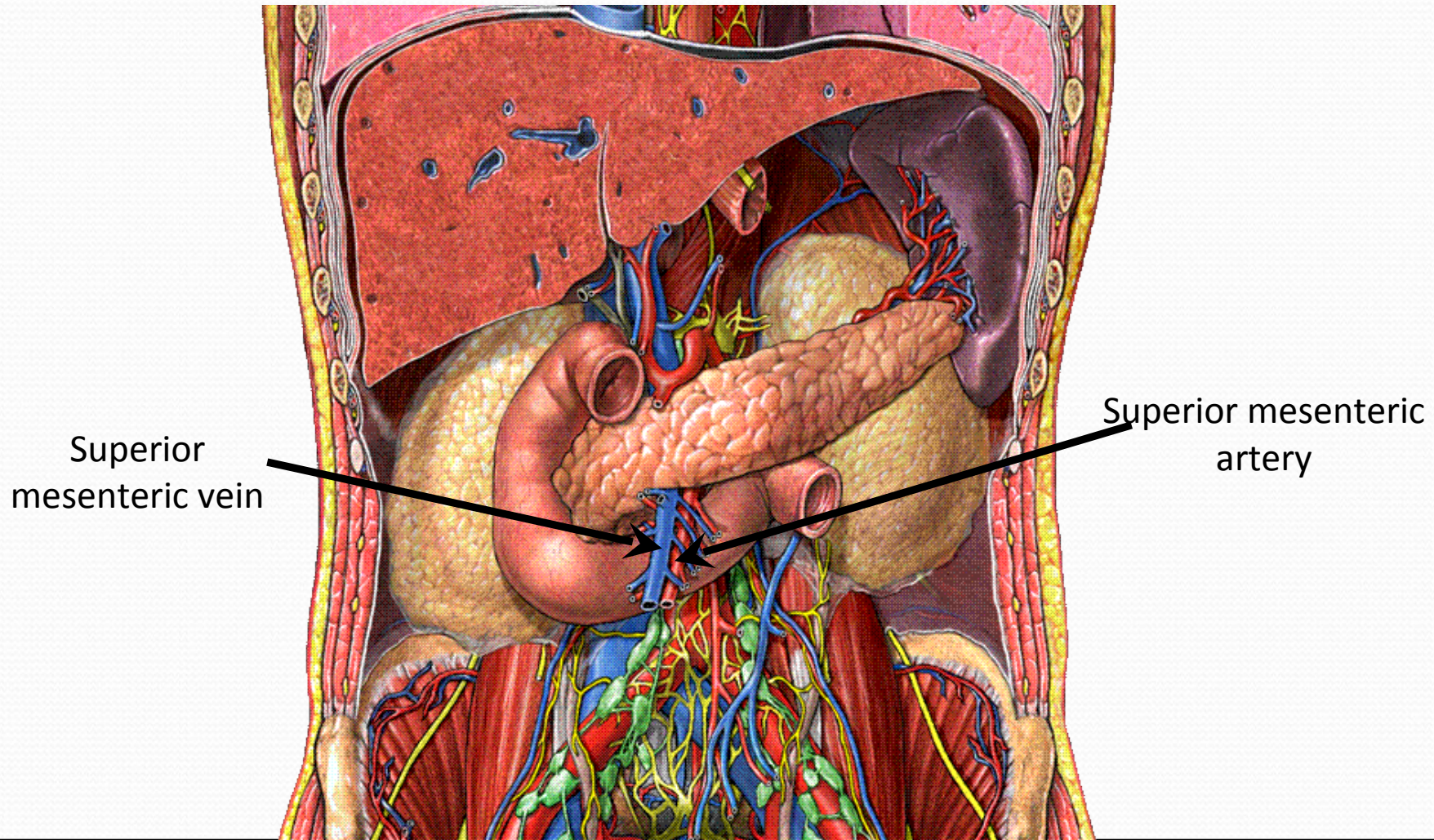
Ampulla of Vater

Main pancreatic duct





# Anterior Relations





# Pancrease

- Opening of pancreatic duct
- Lymphatic drainage
- Neck of pancrease : very important land >> inferior mesenteric vein



# SMALL INTESTINE

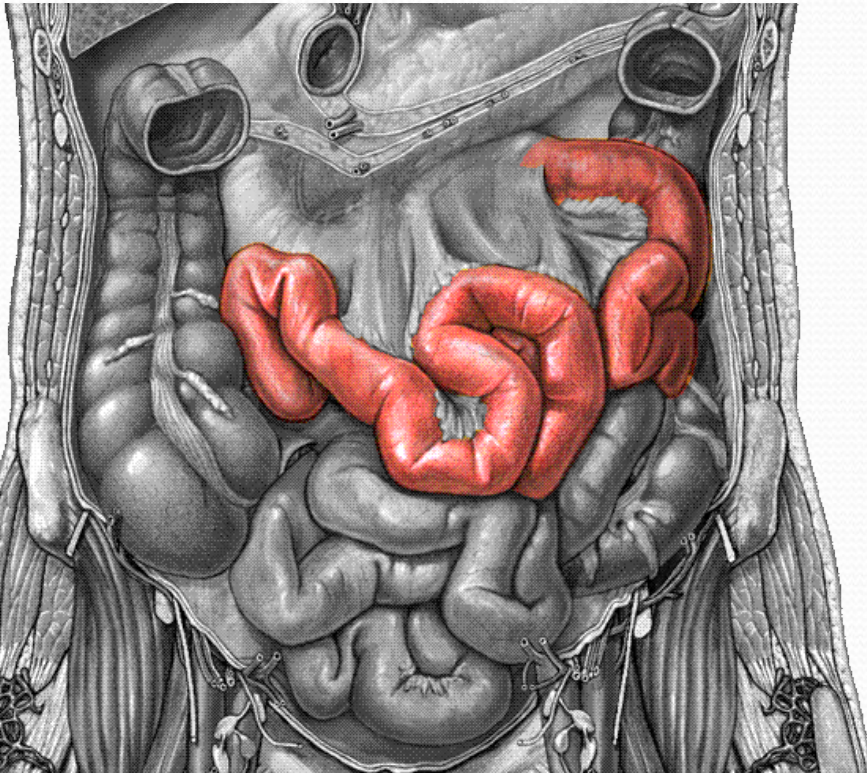
لا تكثر من الشكوى فيأتيك الهمّ ... و لكن أكثر من الحمد لله ♥  
تأتيك السعادة



# Jejunum & ileum

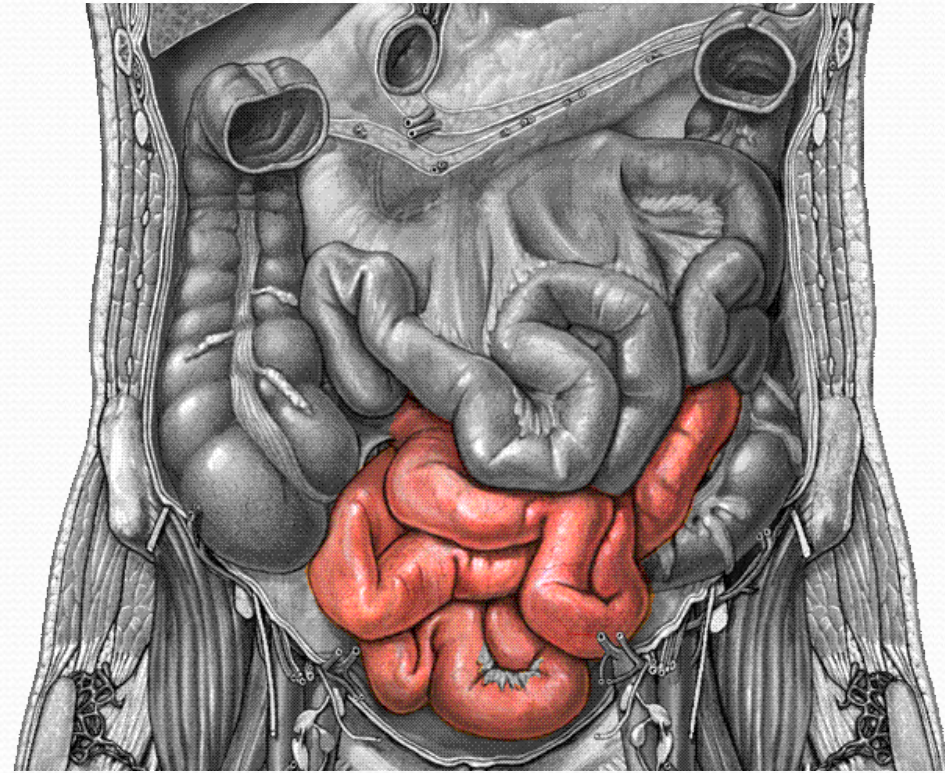
## Jejunum

Proximal 2/5



## Ileum

Distal 3/5





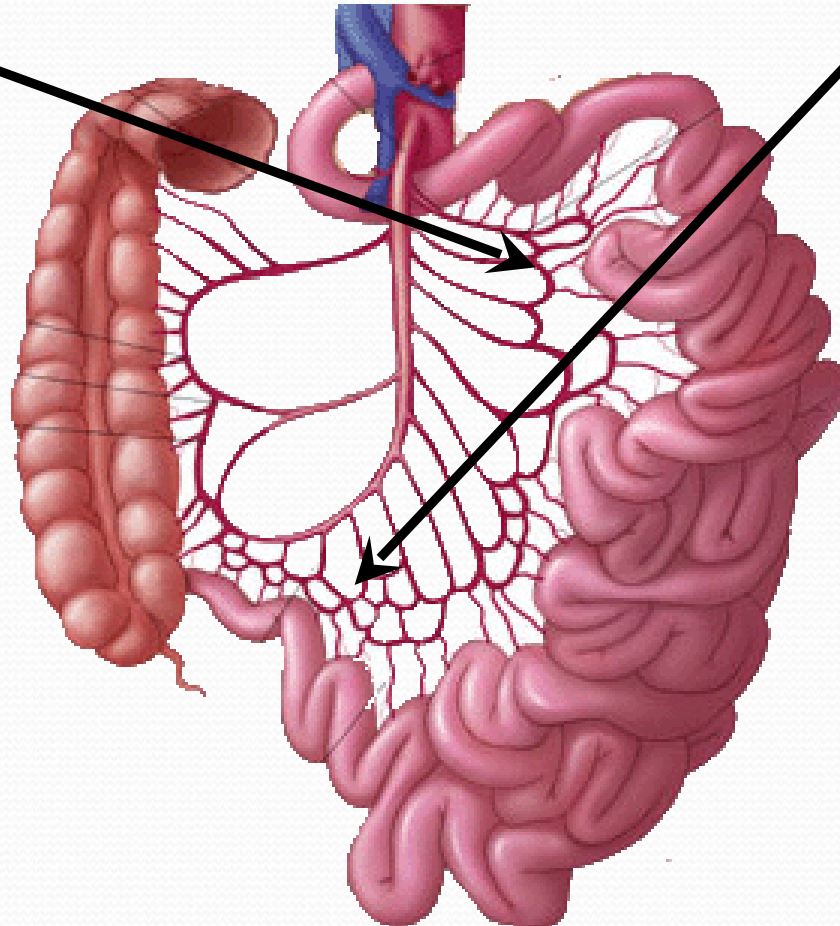
# Arterial arcades

**Jejunum**

**Ileum**

Has 1 or 2 arterial  
arcades

Has 2 or 3 arterial  
arcades

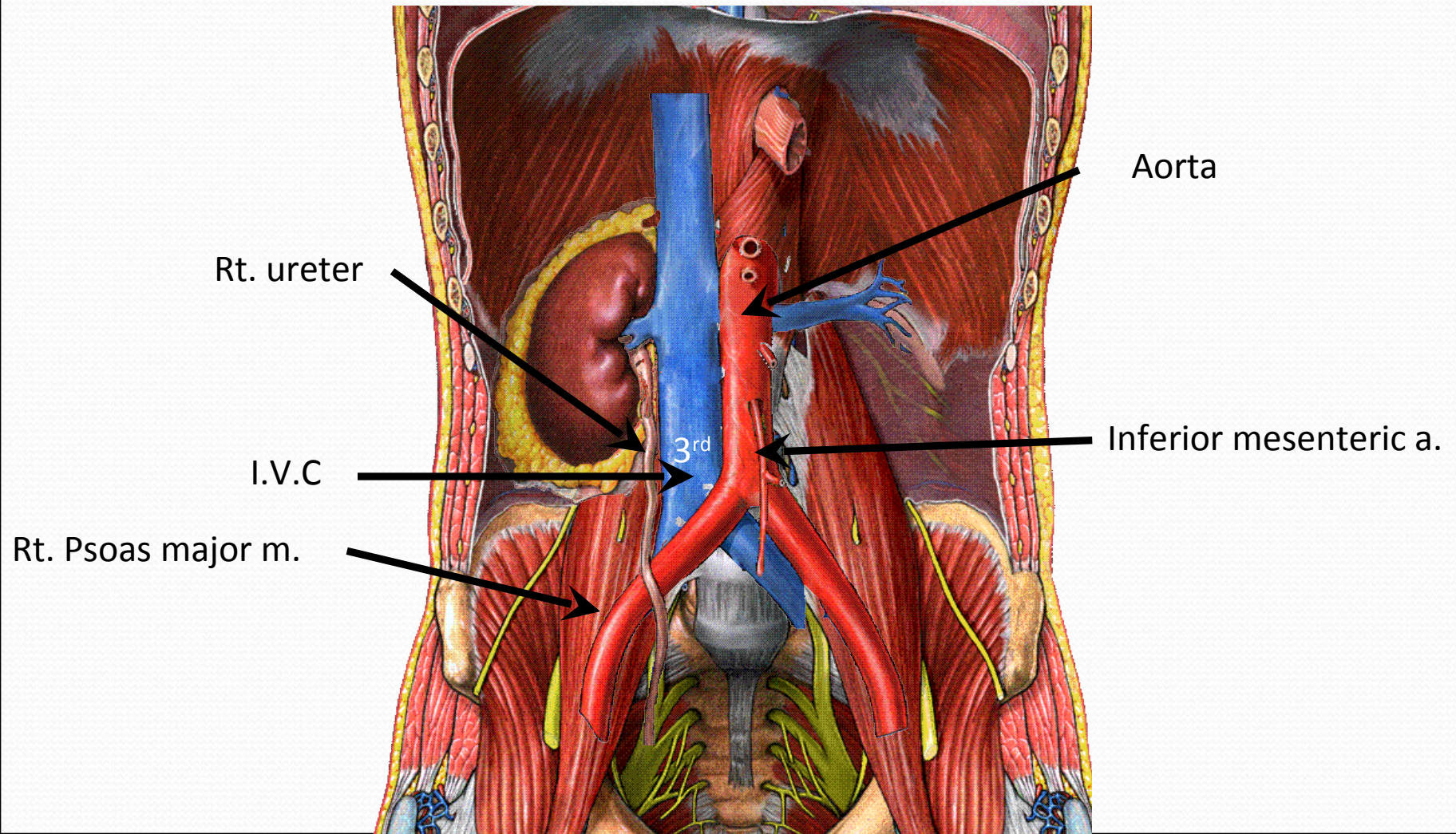




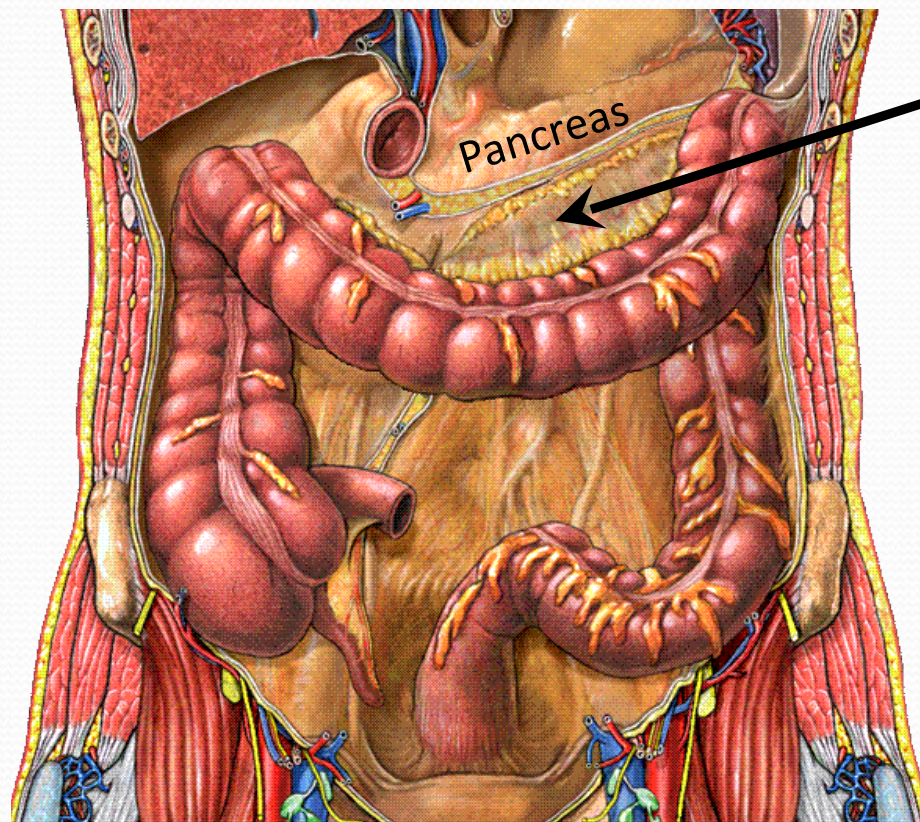
# ABDOMEN

لو إستشعرت صرير القلم وهو يسجل تسبيحك في اللوح المحفوظ لطربت بذكر الله ولما  
فتّرت







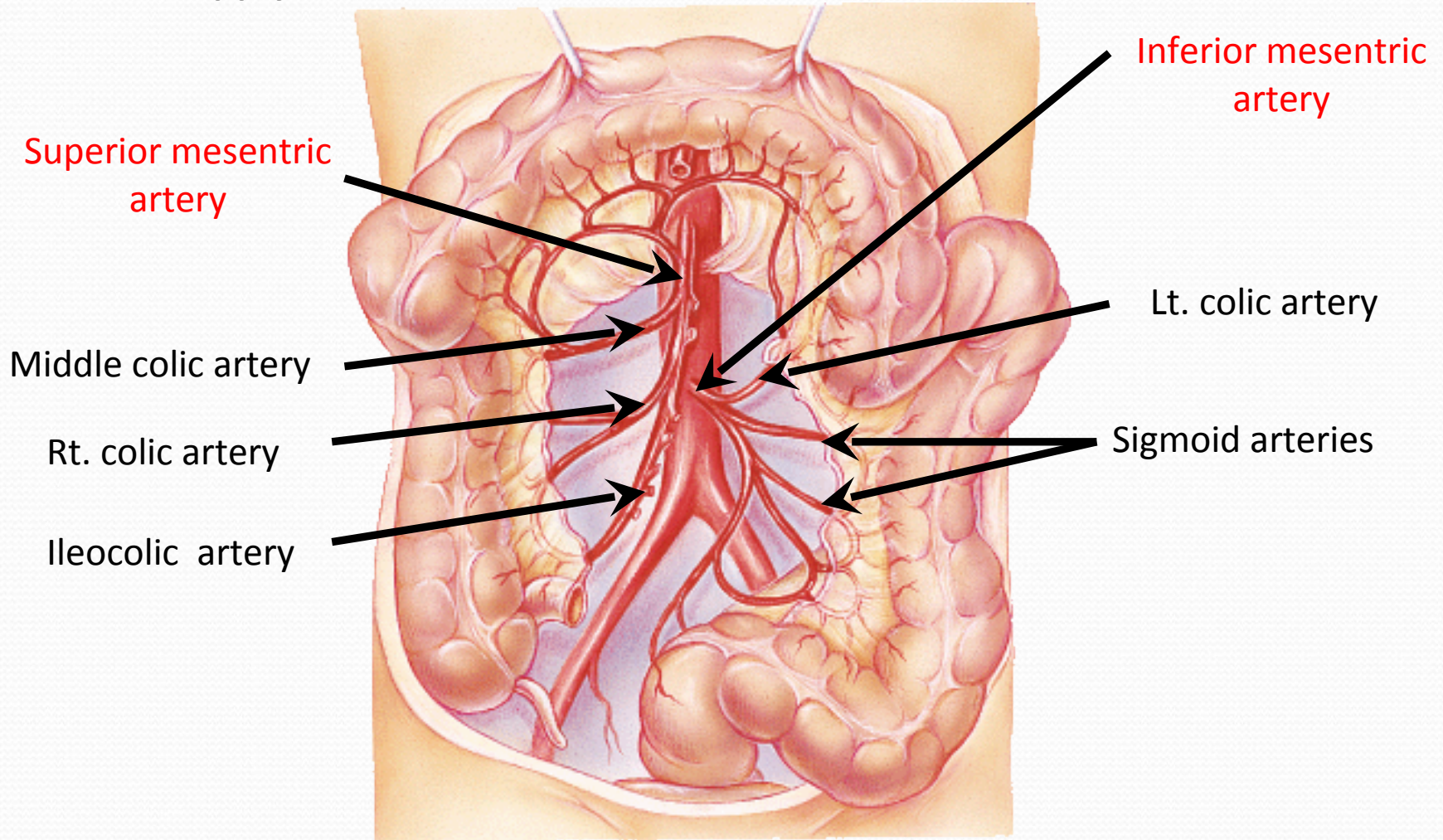


Transverse mesocolon



# Blood supply

## Arterial supply

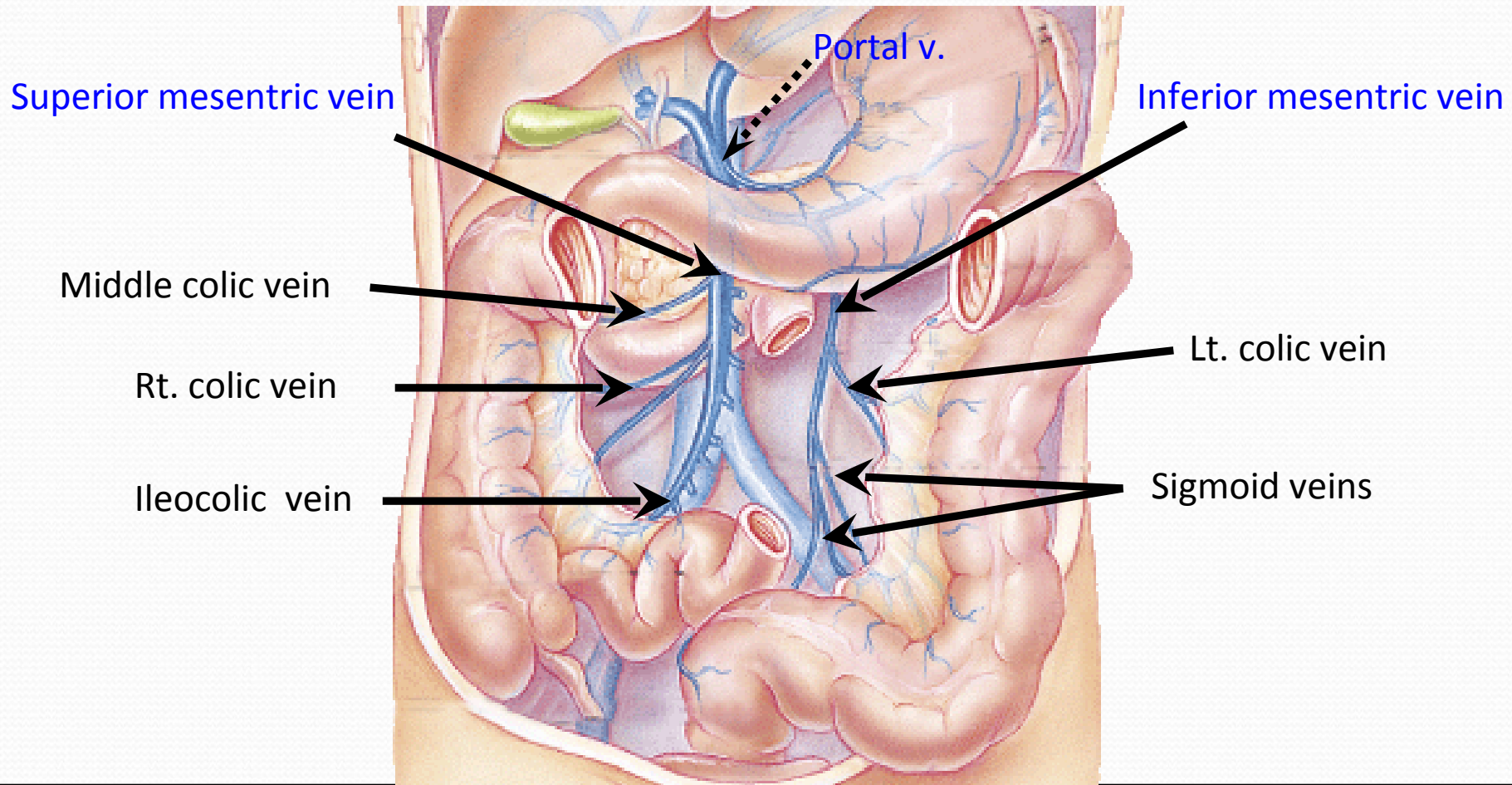




# Blood supply

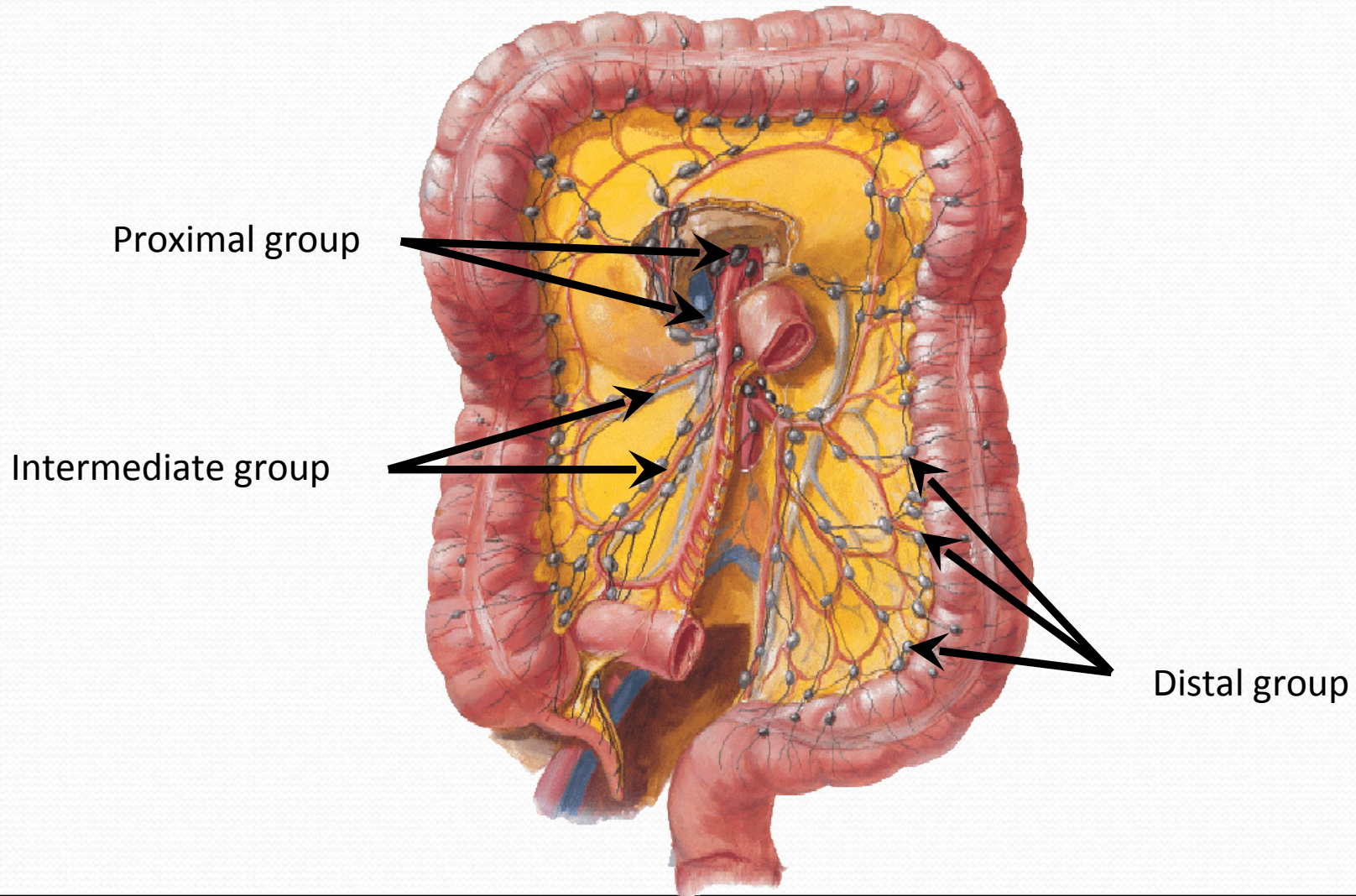
## Venous drainage

Veins are parallel to arteries & have similar names & drain in portal vein





# Lymphatic drainage





# colon

- Mesentry & transverse mesocolon مهمين جدا
- Blood supply of colon مهم جدا  
N.B blood supply of colon is segmentsd , While of stomach or rectum is non segmented
- Venous drainage
- Lymphatic drainage : جا  
  - Central group ( 3 stations ) : celiac , superior , inferior mesenteric group
  - Intermediate group
  - Paracolic group
  - Epicolic group



# Abdomen

## ( small & large intestine )

### ➤ Muscles :

1. Psoas ms & psoas fascia (important as when TB produce psoase abscess it will start at transverse process of spine till lesser trochanter of femur which is insertion of ms )
2. iliacus ms

### ➤ Archades of jujenum & ileum مهمين جدا

### ➤ diaphraghm opening : >> 3 <<

1. opening for aorta
2. Oesophagus
3. IVC

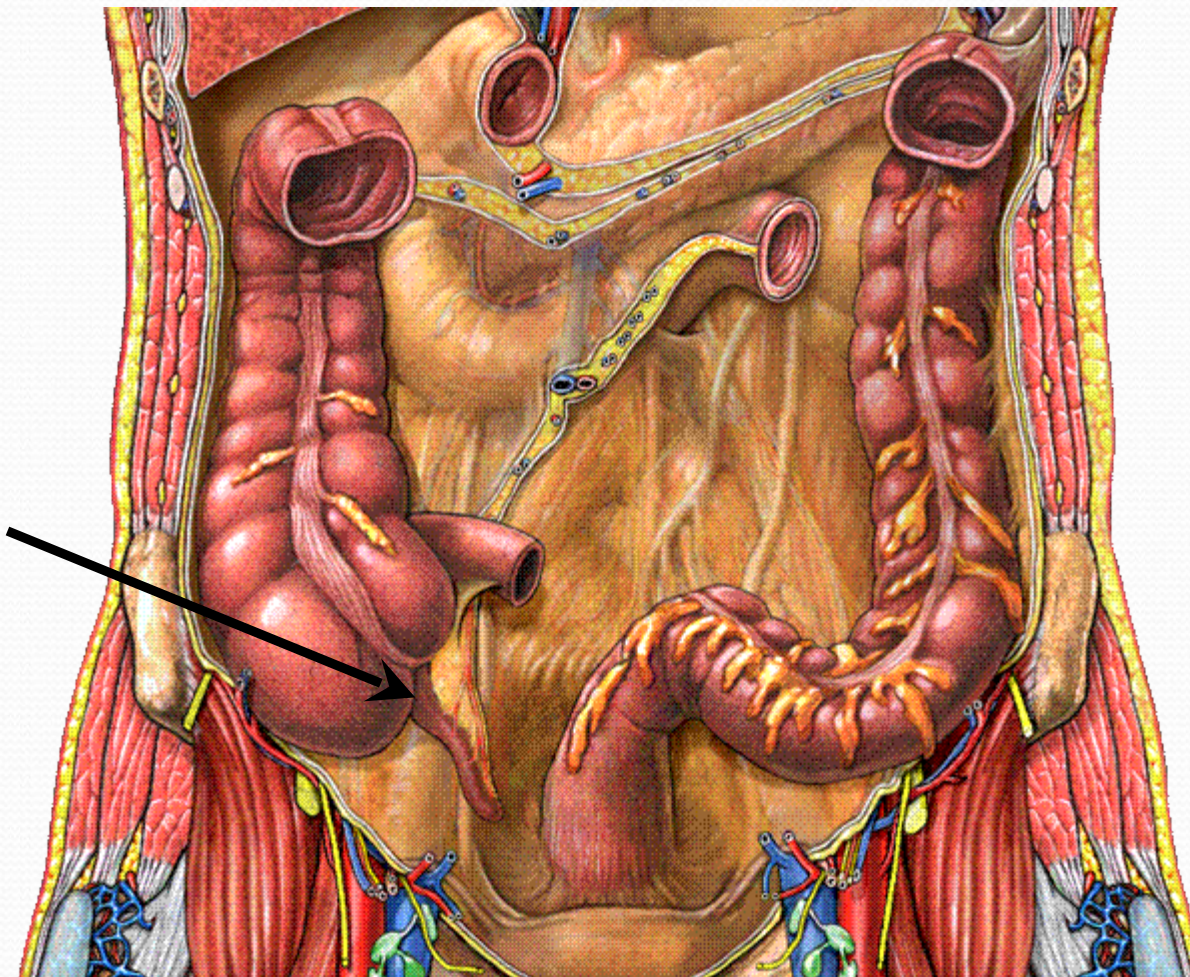


# APPENDIX

( ومن يتق الله يجعل له مخرجاً \* ويرزقه من حيث لا يحتسب )

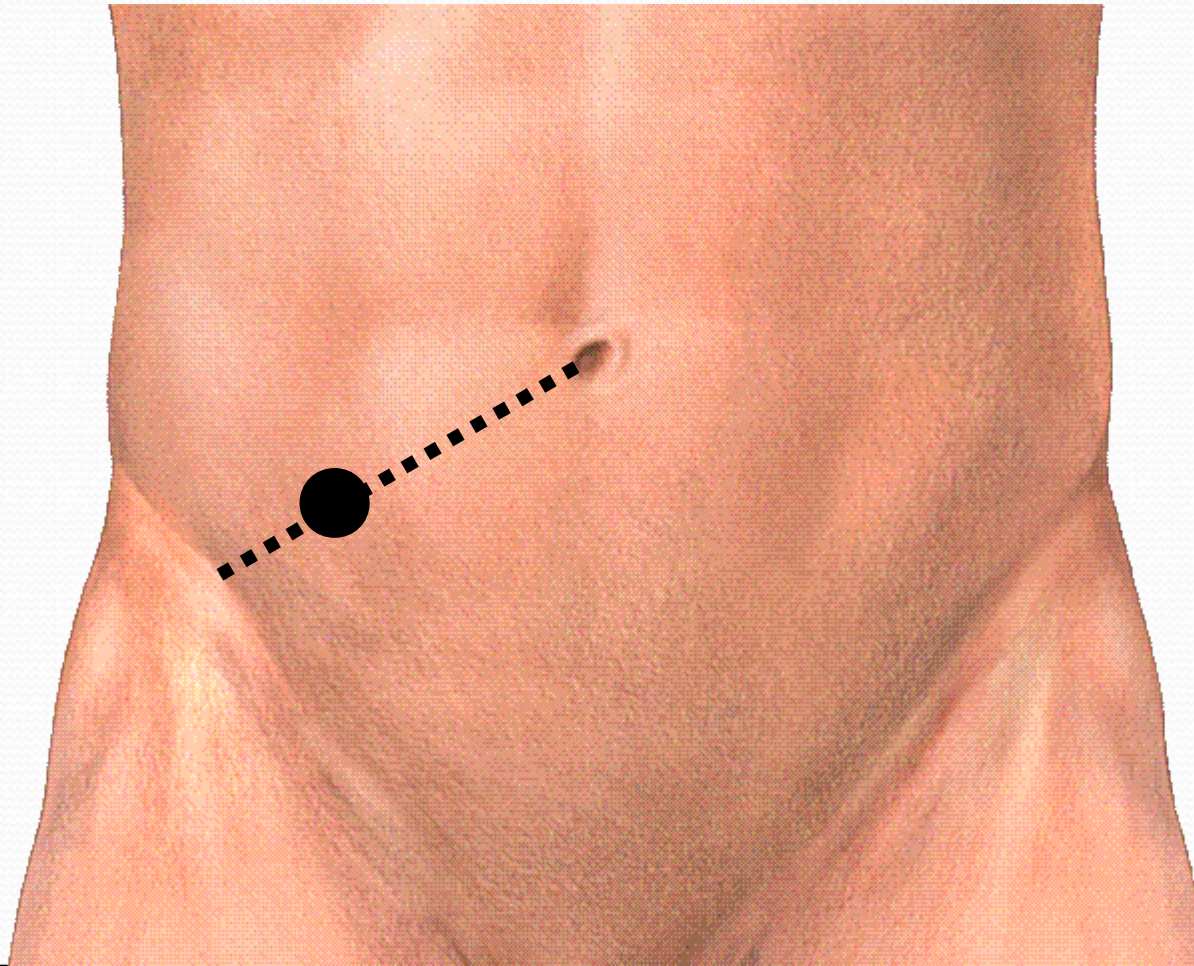


Base of the  
appendix

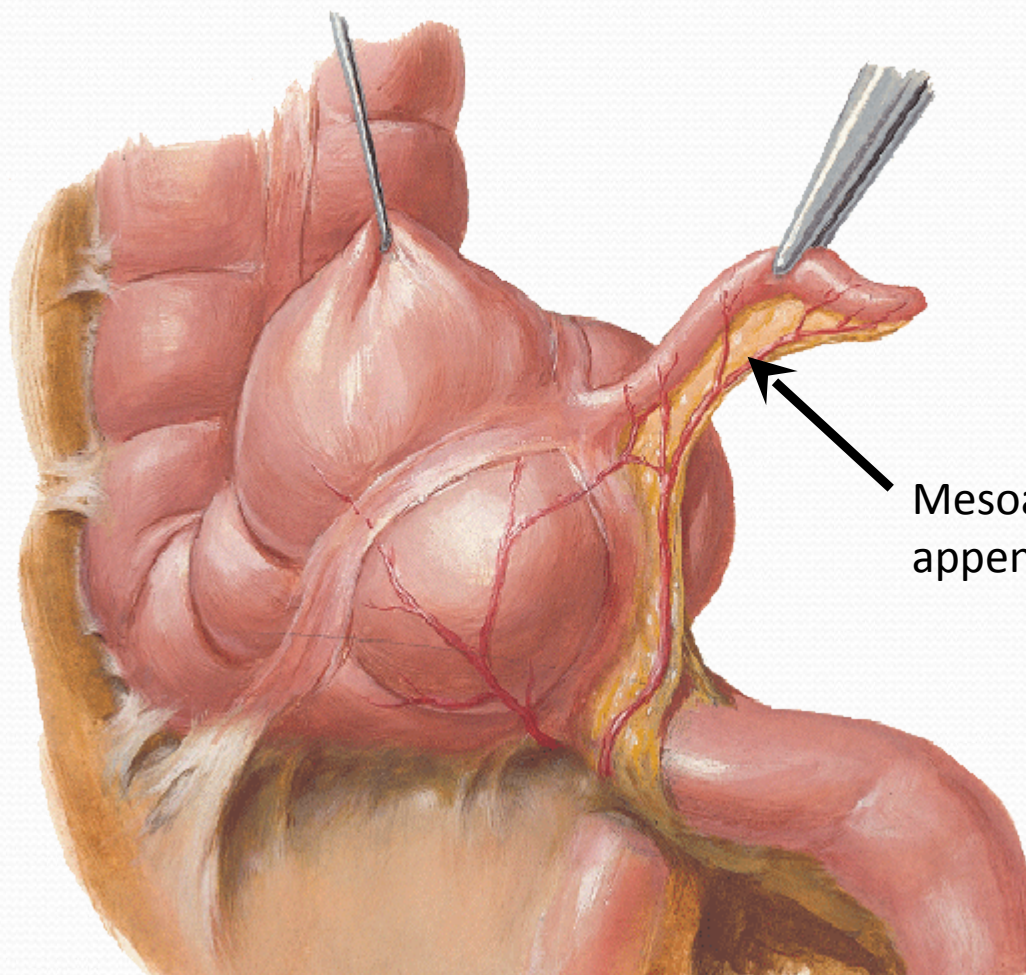




**Mc Burney's point:** at junction of lateral 1/3 & medial 2/3 of line extending from A.S.I.S to umbilicus







Mesoappendix containing  
appendicular artery



# appendix

- base of appendix at mc burny point (def. )
- sites of tip





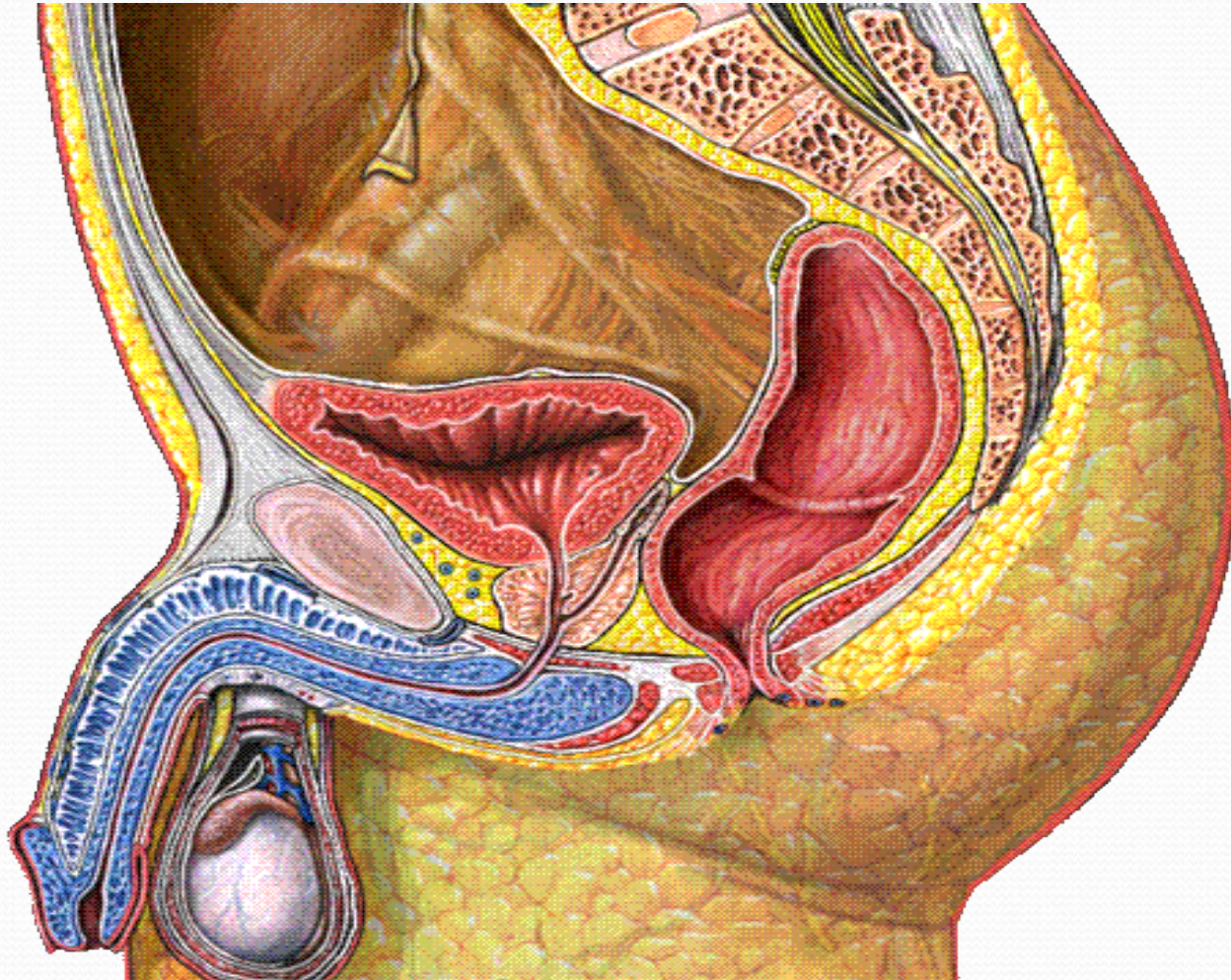
**RECTUM**

**&**

**ANUS**

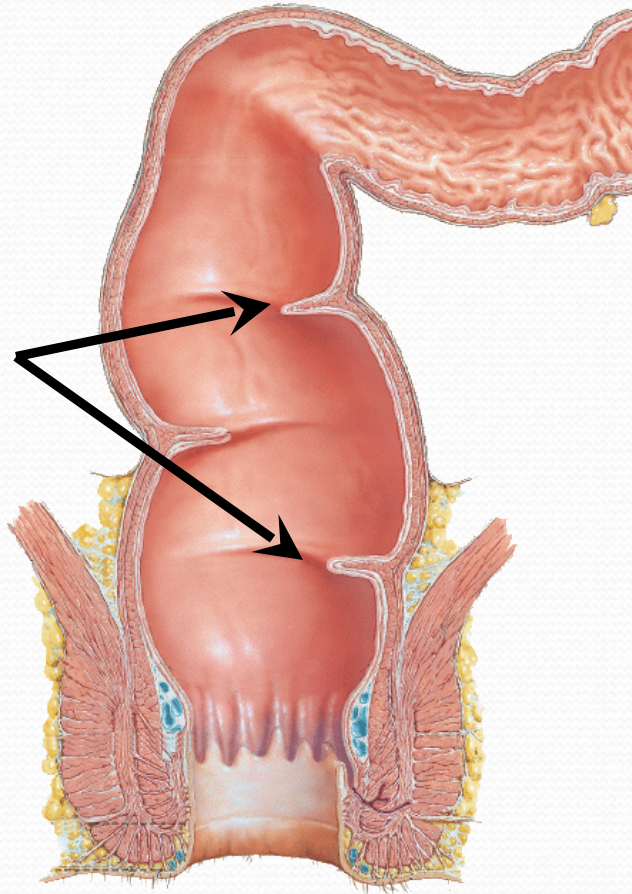


# RECTUM



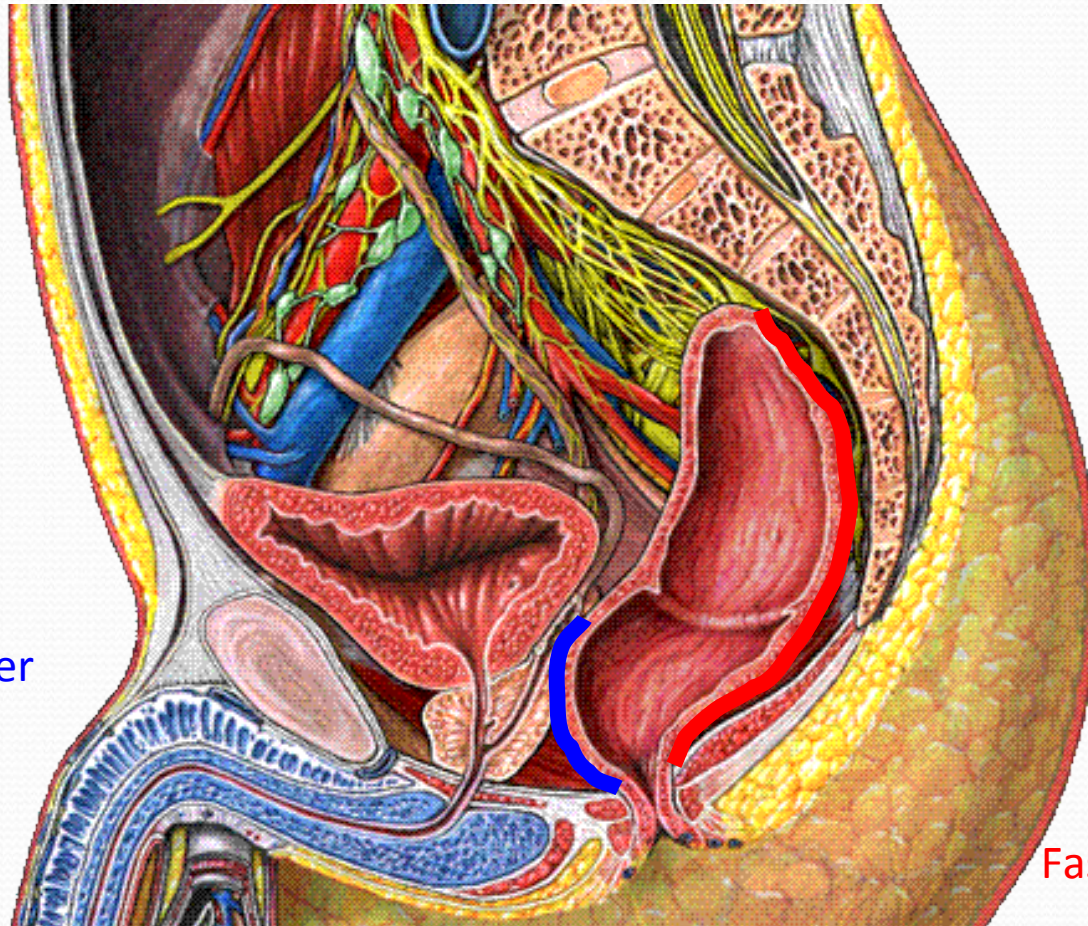


Rectal  
Valves of  
Houston





# Fascia



Anteriorly

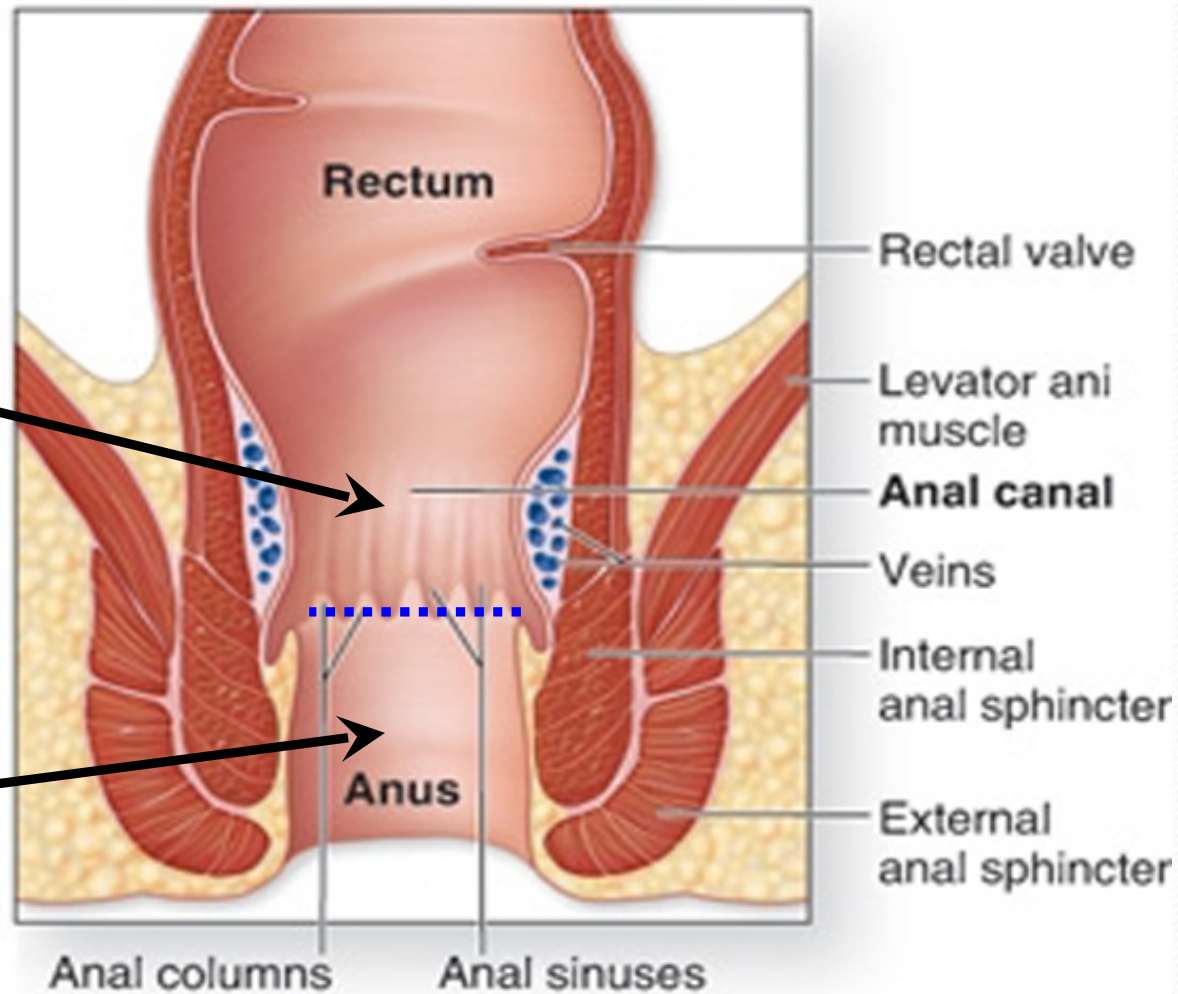
Posteriorly

Fascia of Denonvillier

Fascia of Waldeyer



# Anal Canal

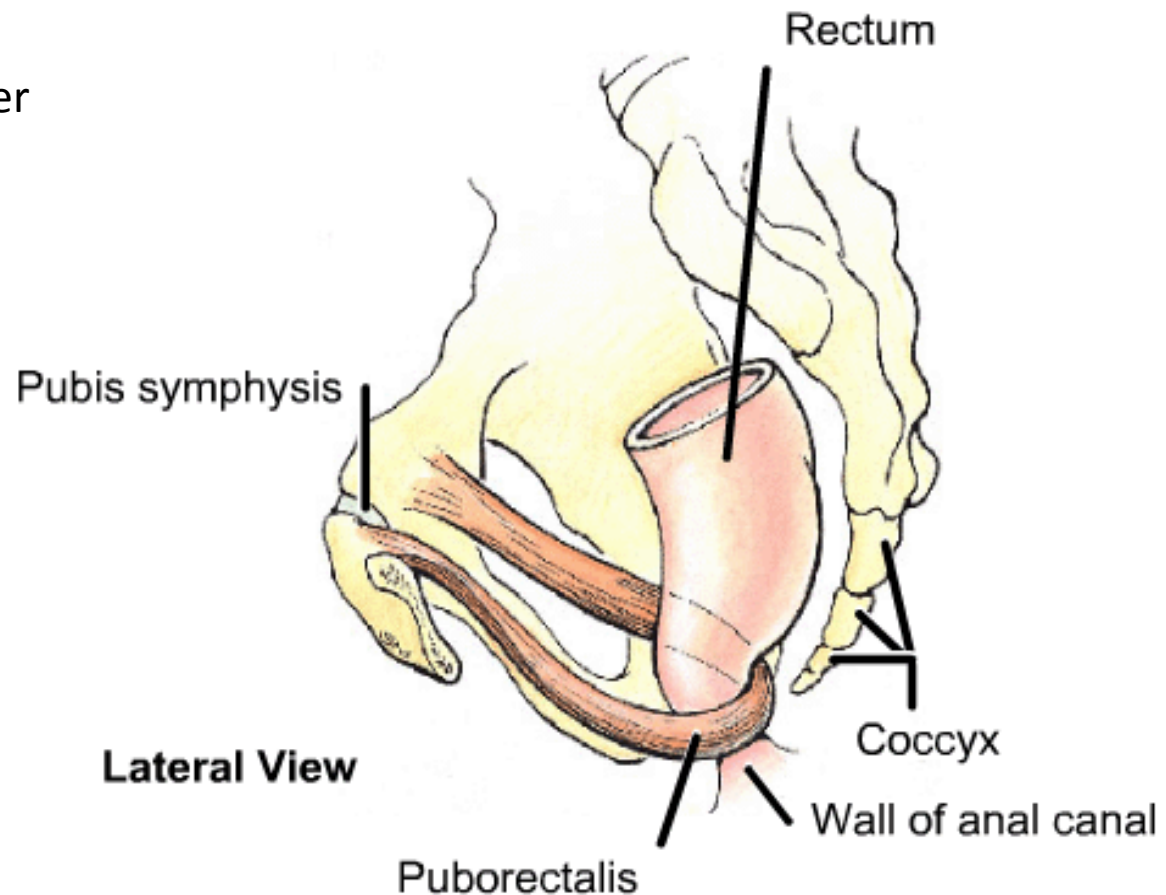




# Anorectal Ring

At the level of puborectalis the anorectal ring is formed of:

- 1- Internal sphincter
- 2- Deep external sphincter
- 3- puborectalis





# Anal canal & rectum

➤ Rectal valve of Houston

➤ Fascia : مهمين جدا

1. Fascia of Denonvillier = anterior fascia ( prevent invasion of cancer prostate to rectum or cancer rectum to prostate

2. Fascia of Waldeyer

➤ Ano-rectal angle



# EXAMPLES OF EXAM

Q function of anterior fascia of rectum is .....

Q this angle called ano-rectal (60:110) & responsible for anal incontinence

Q internal spincter is affected by fissures which ttt by sphinctrotomy



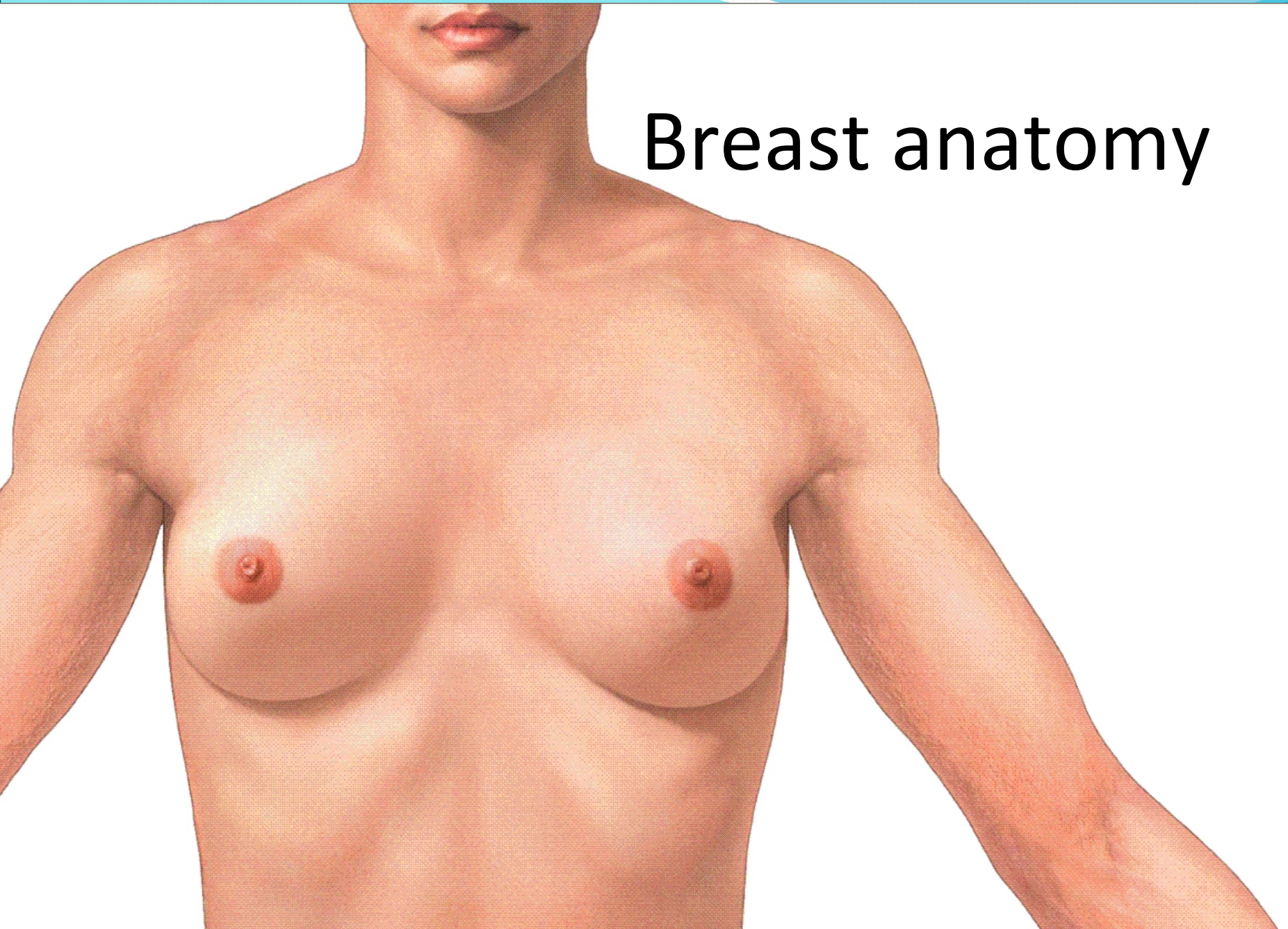
**BREAST**

**&**

**ARM**

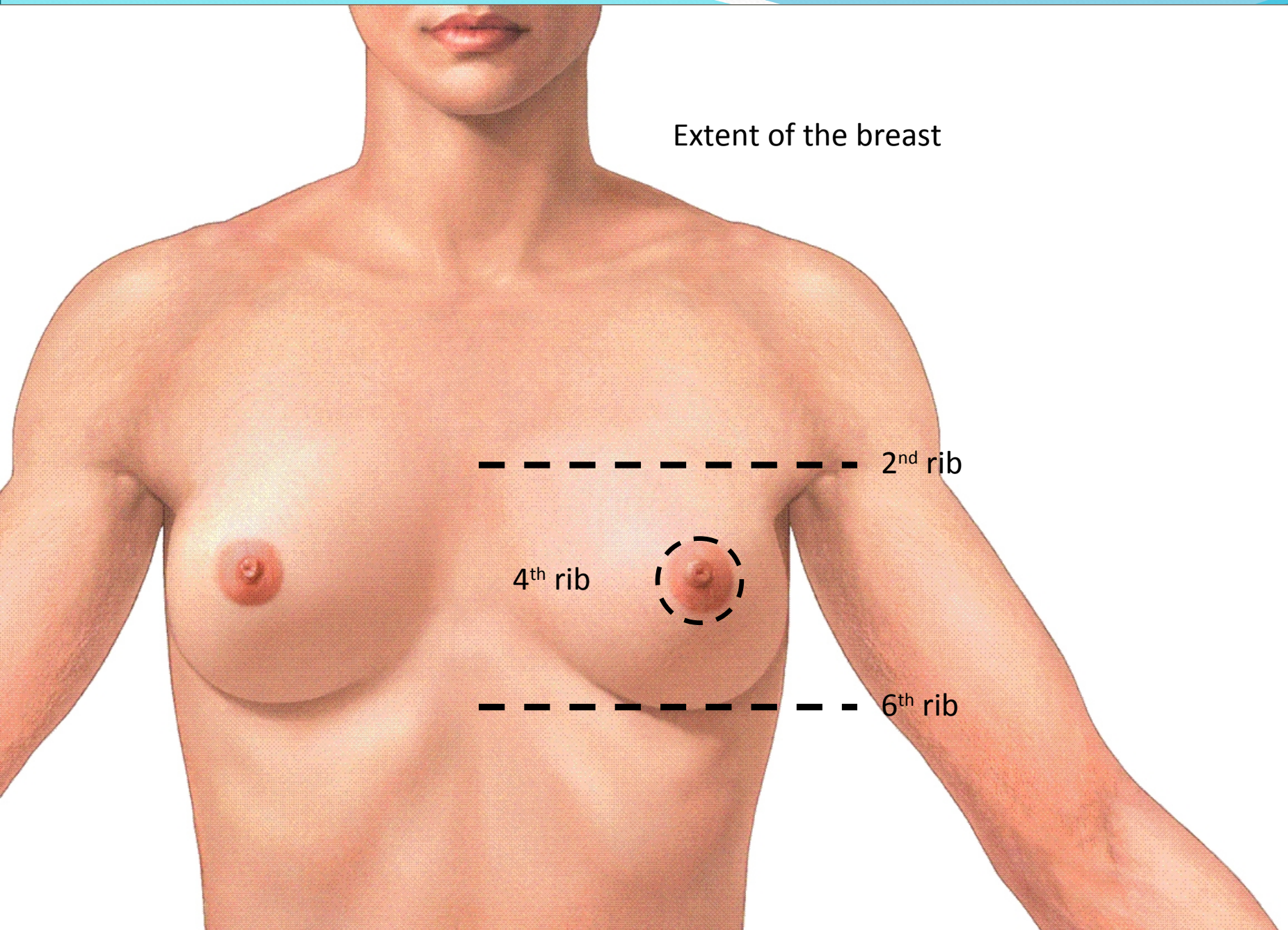


# Breast anatomy

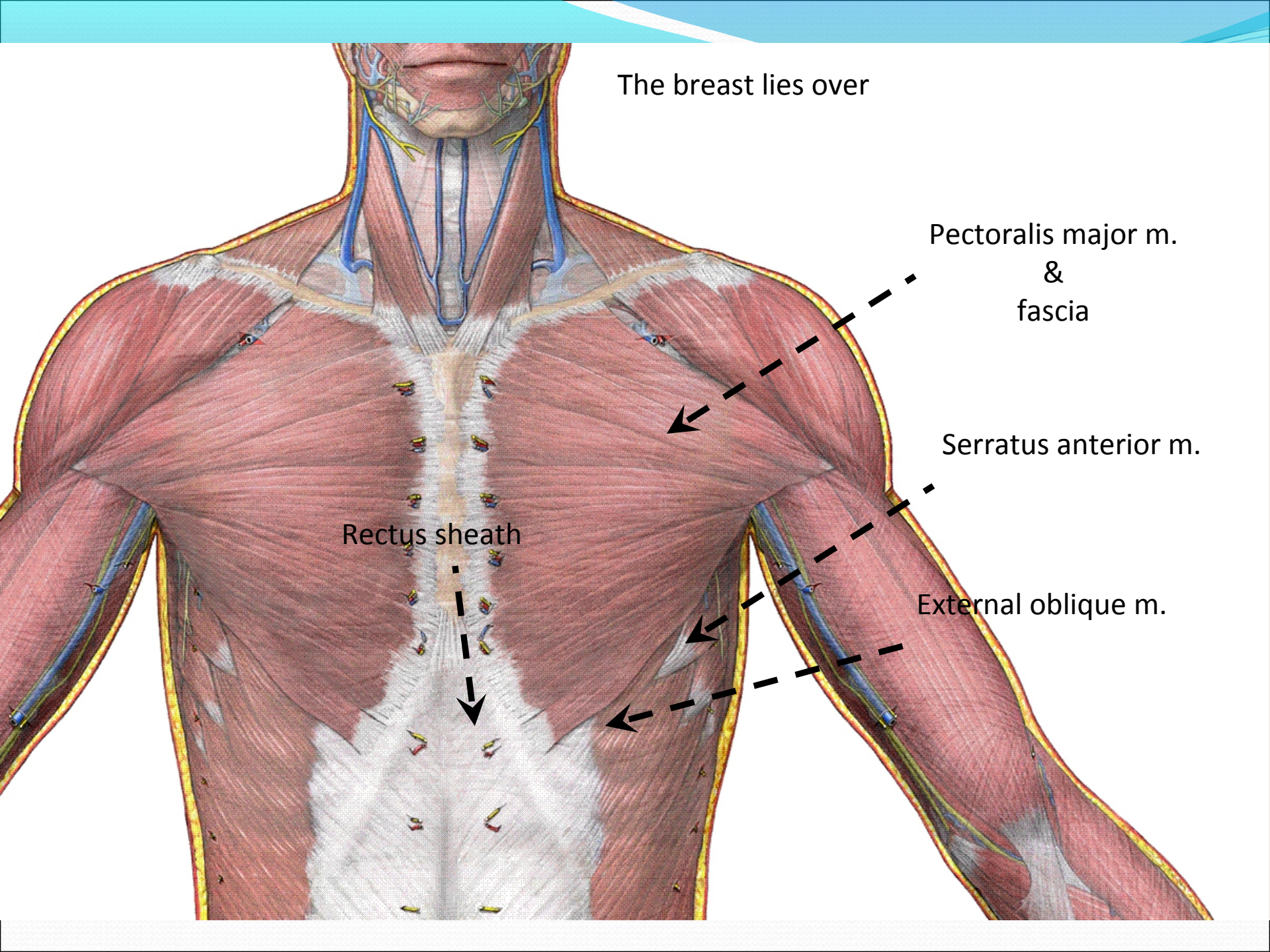




Extent of the breast







The breast lies over

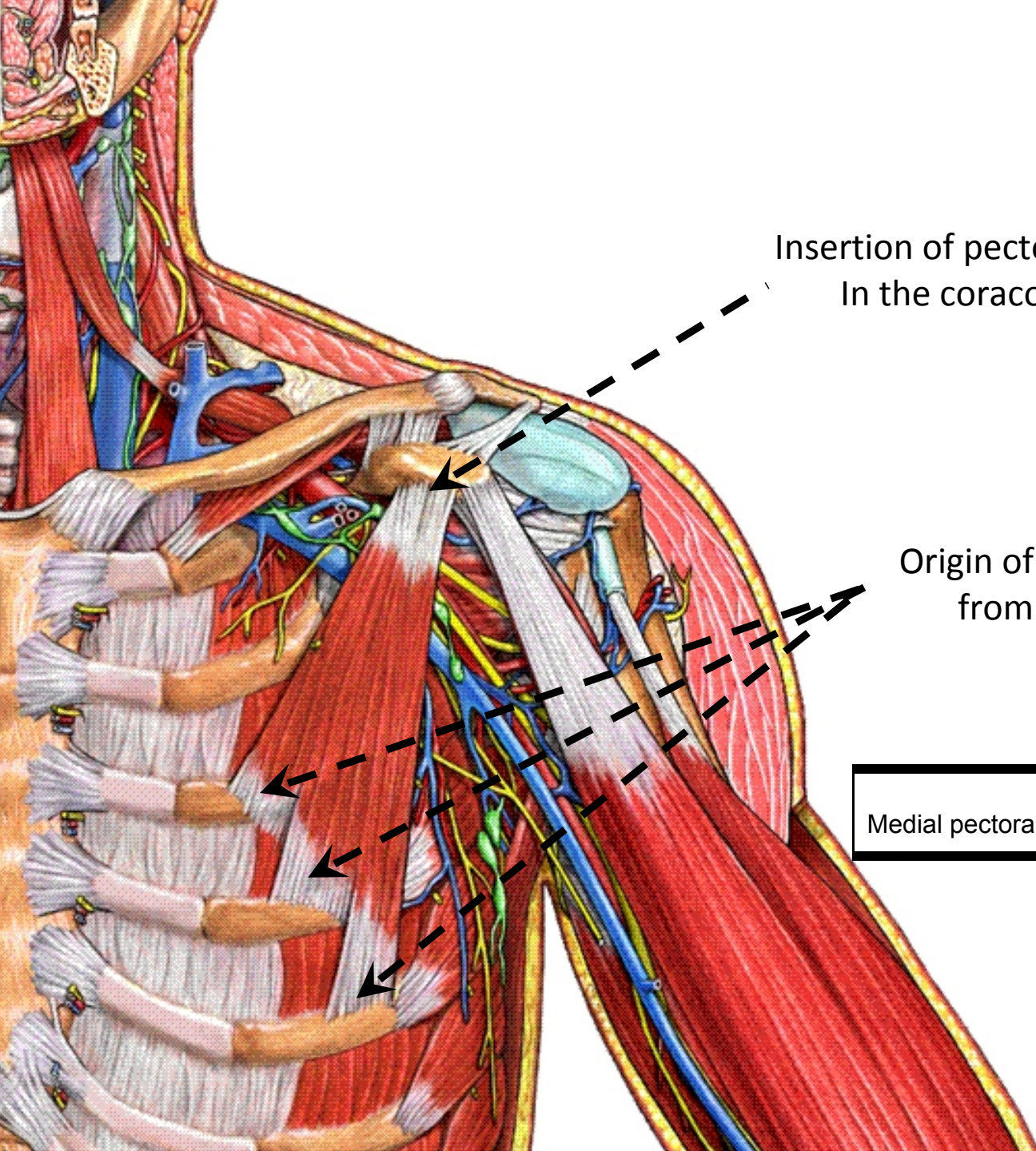
Pectoralis major m.  
&  
fascia

Serratus anterior m.

Rectus sheath

External oblique m.





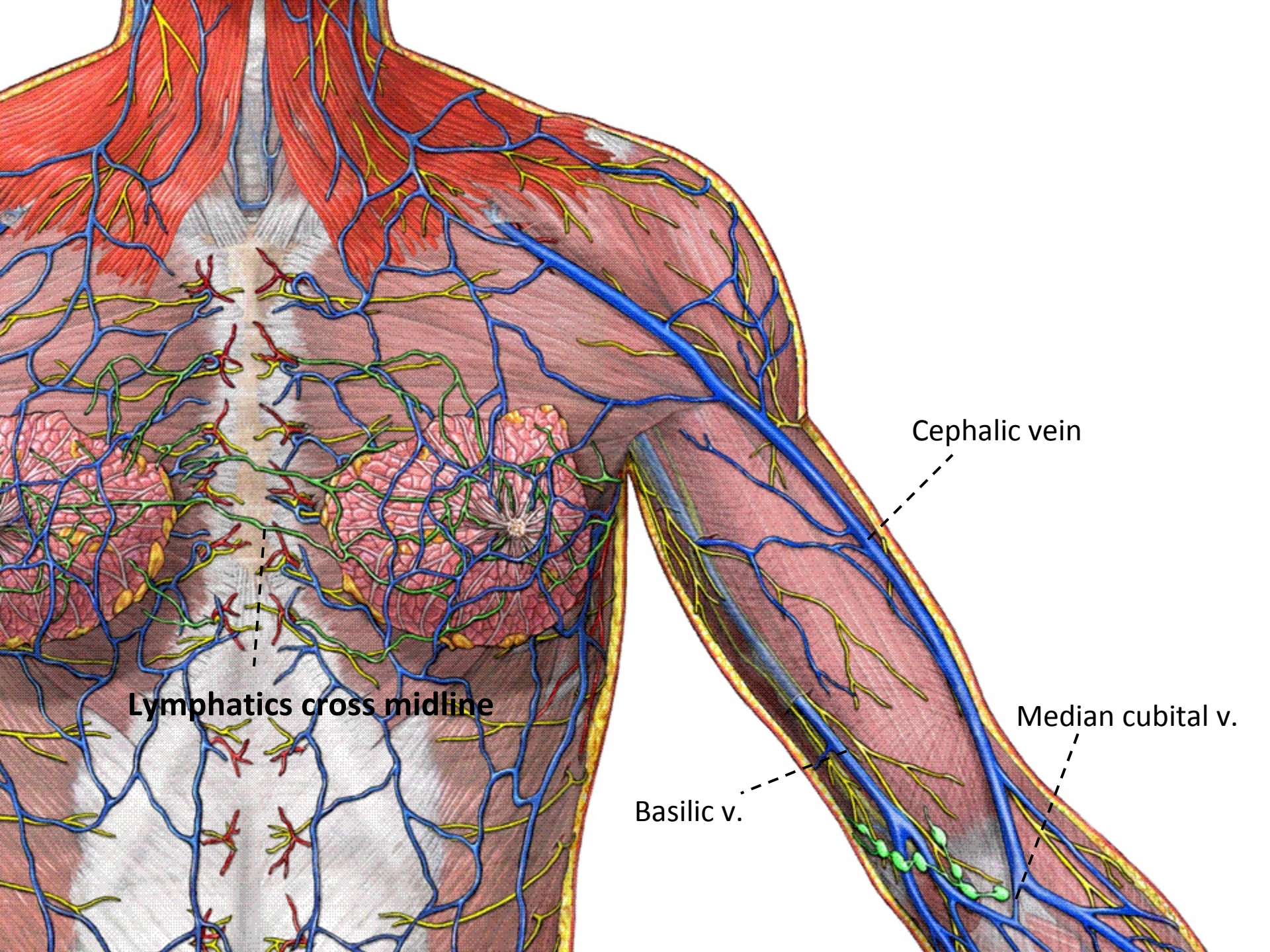
Insertion of pectoralis minor m.  
In the coracoid process

Origin of Pectoralis minor m.  
from 3<sup>rd</sup>, 4<sup>th</sup> & 5<sup>th</sup> ribs.

Medial pectoral n.

Nerve supply





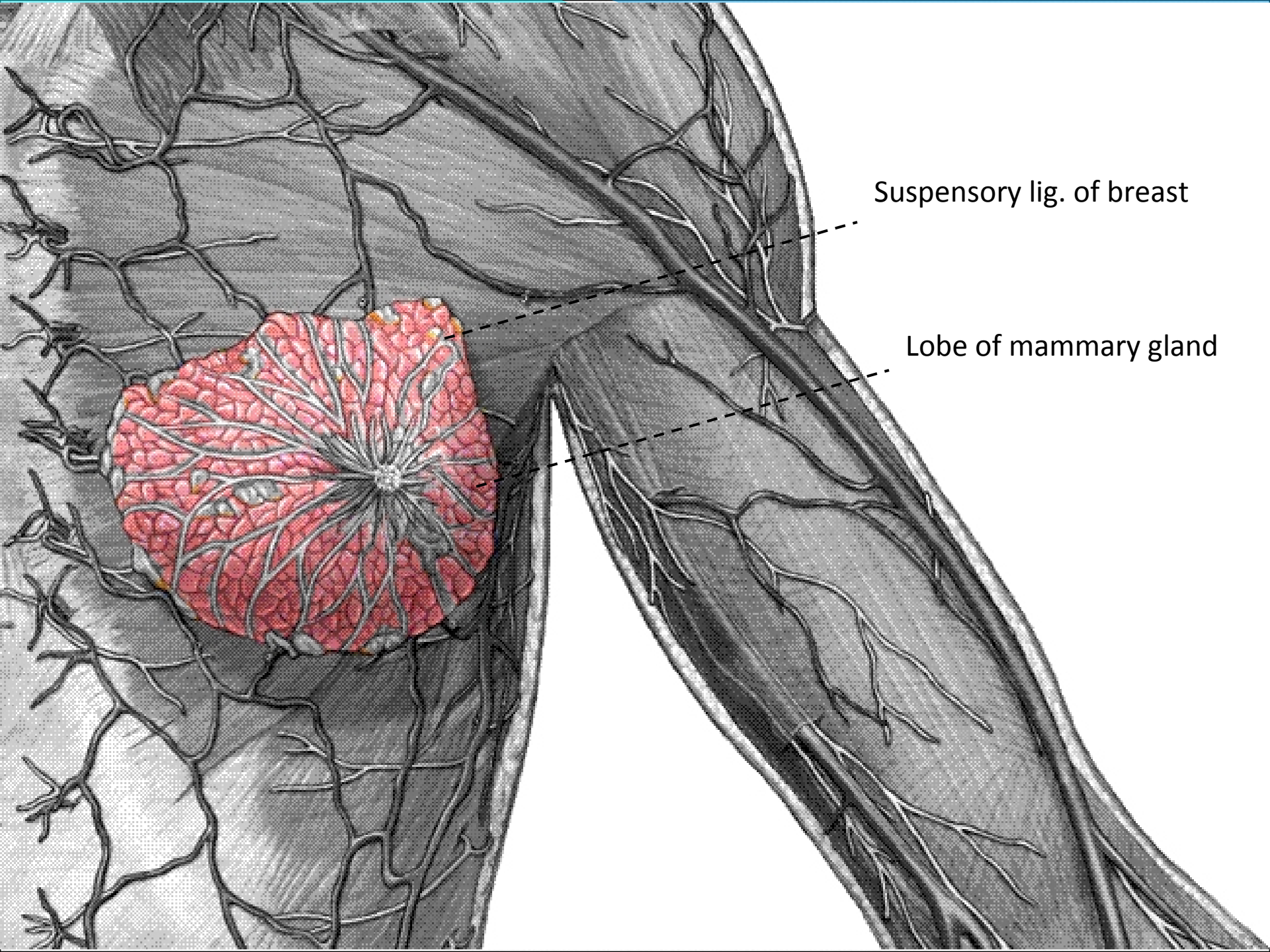
Cephalic vein

Median cubital v.

Basilic v.

Lymphatics cross midline

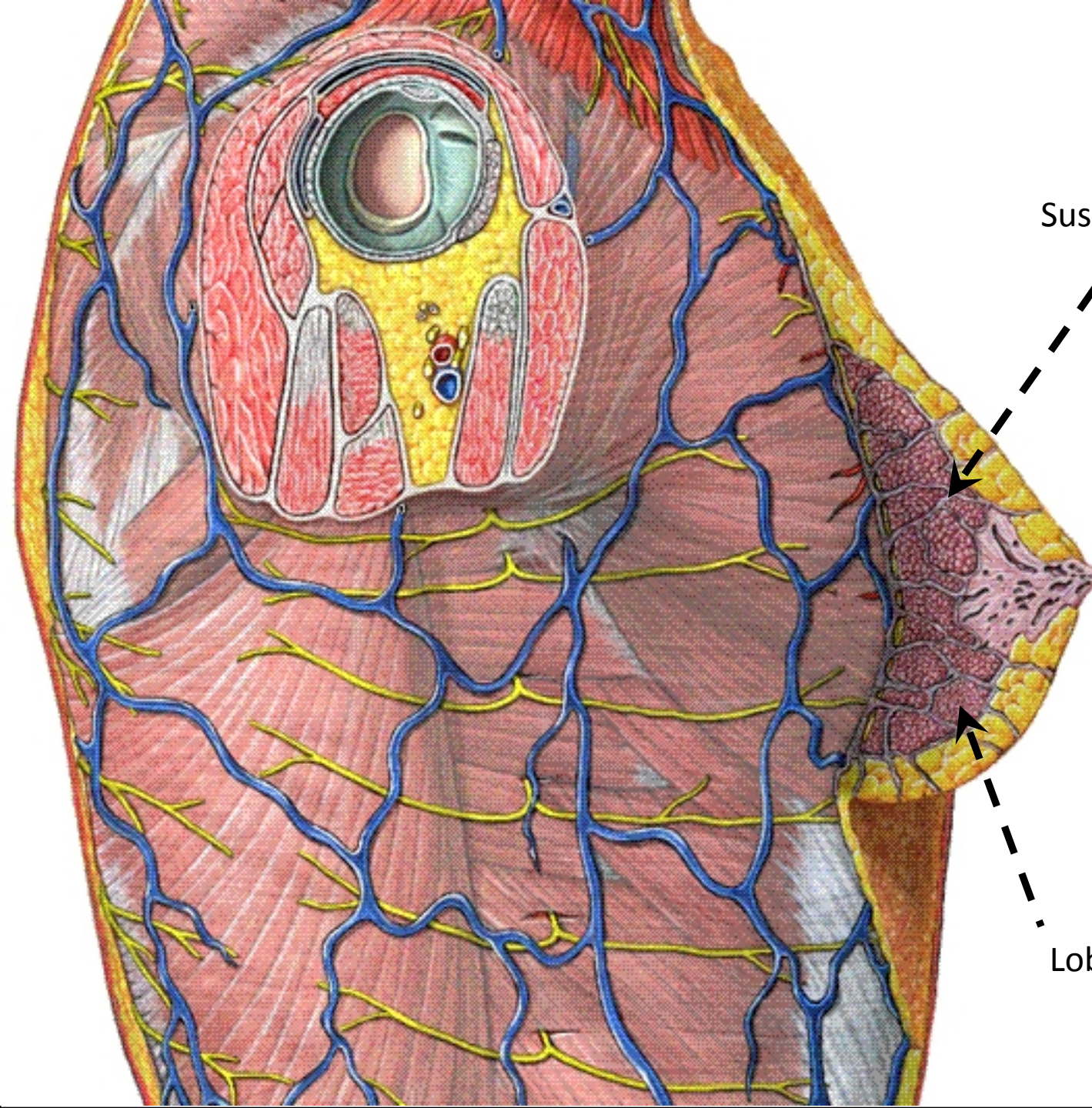




Suspensory lig. of breast

Lobe of mammary gland



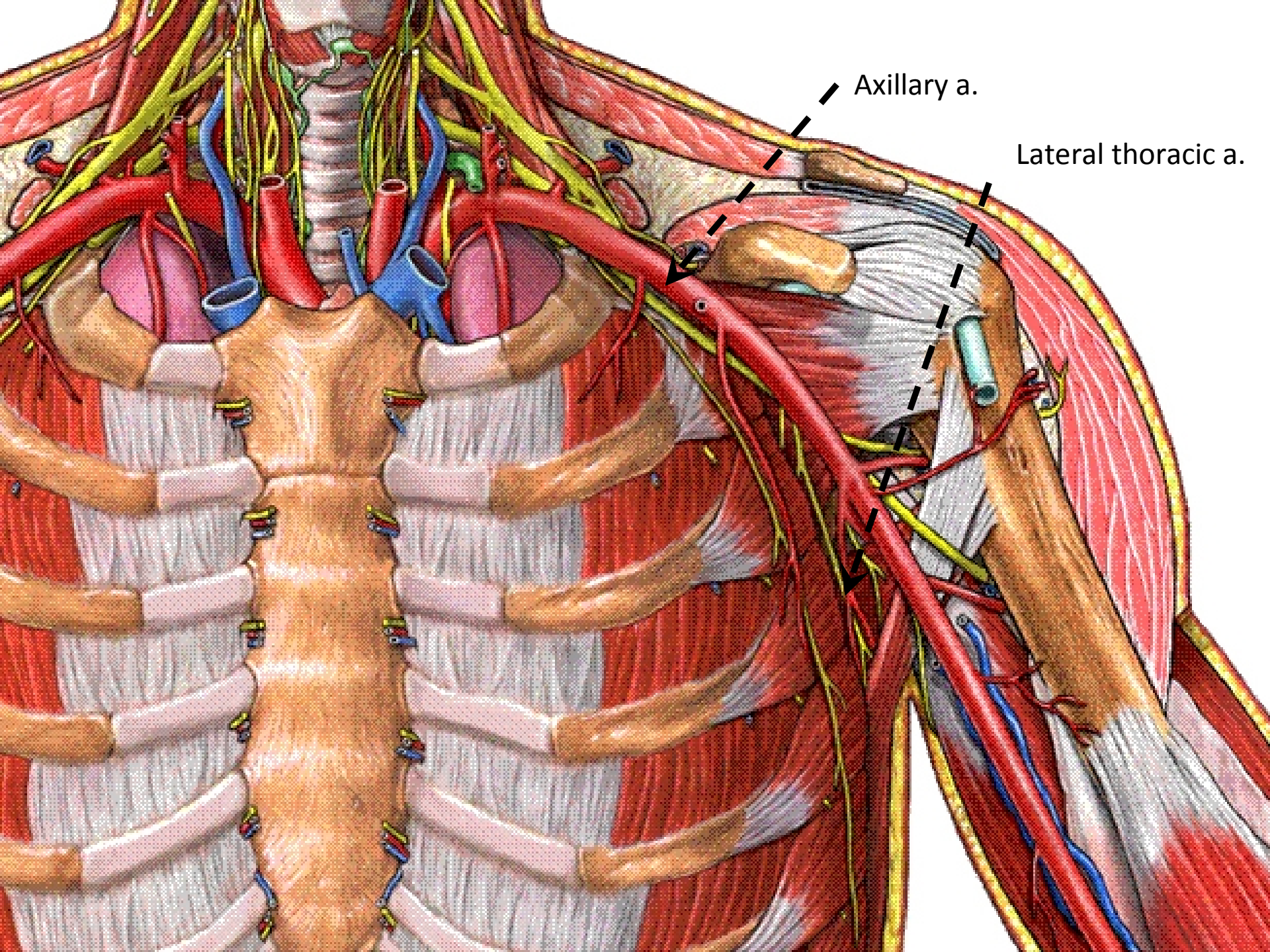


Suspensory lig. of breast



Lobe of mammary gland

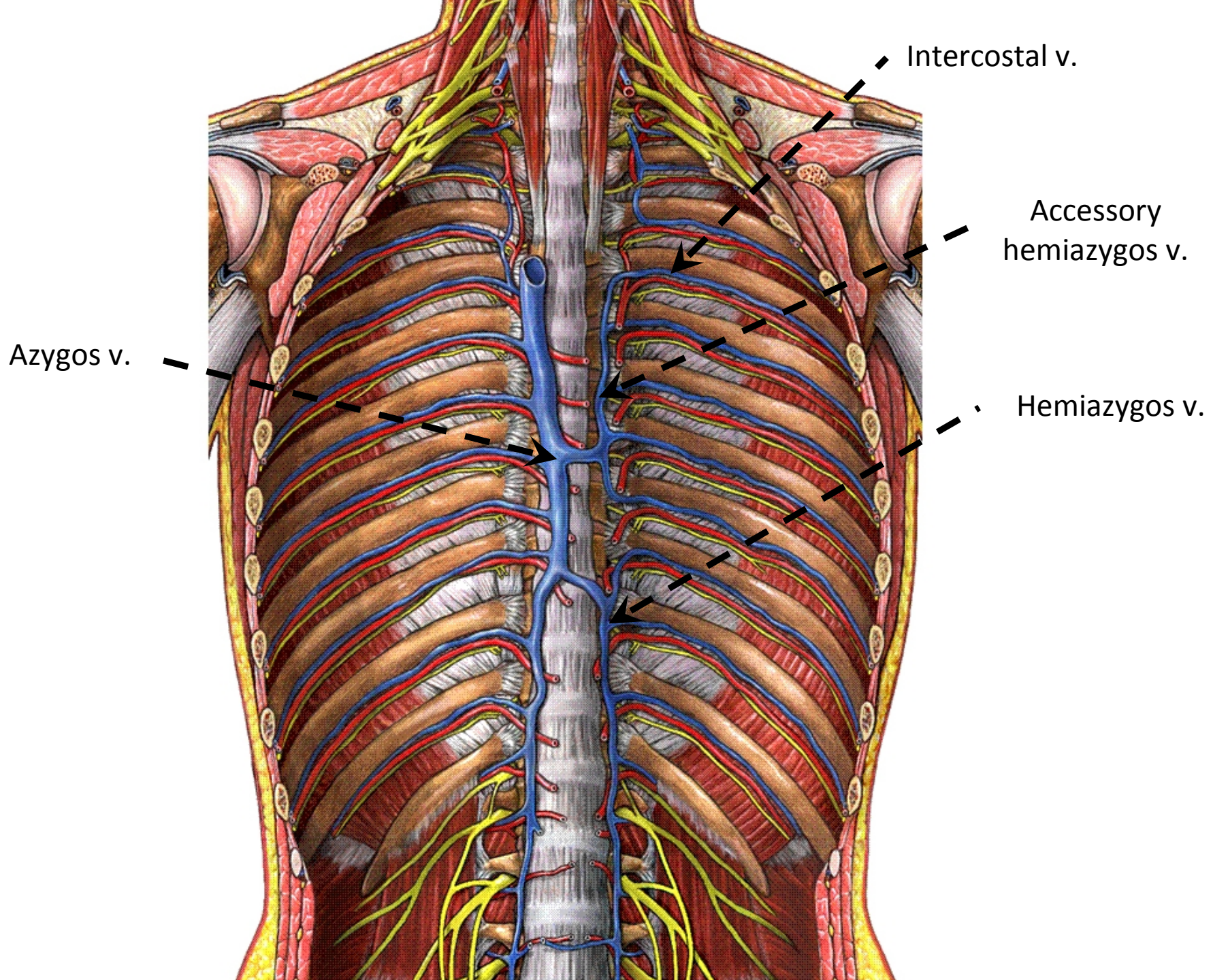




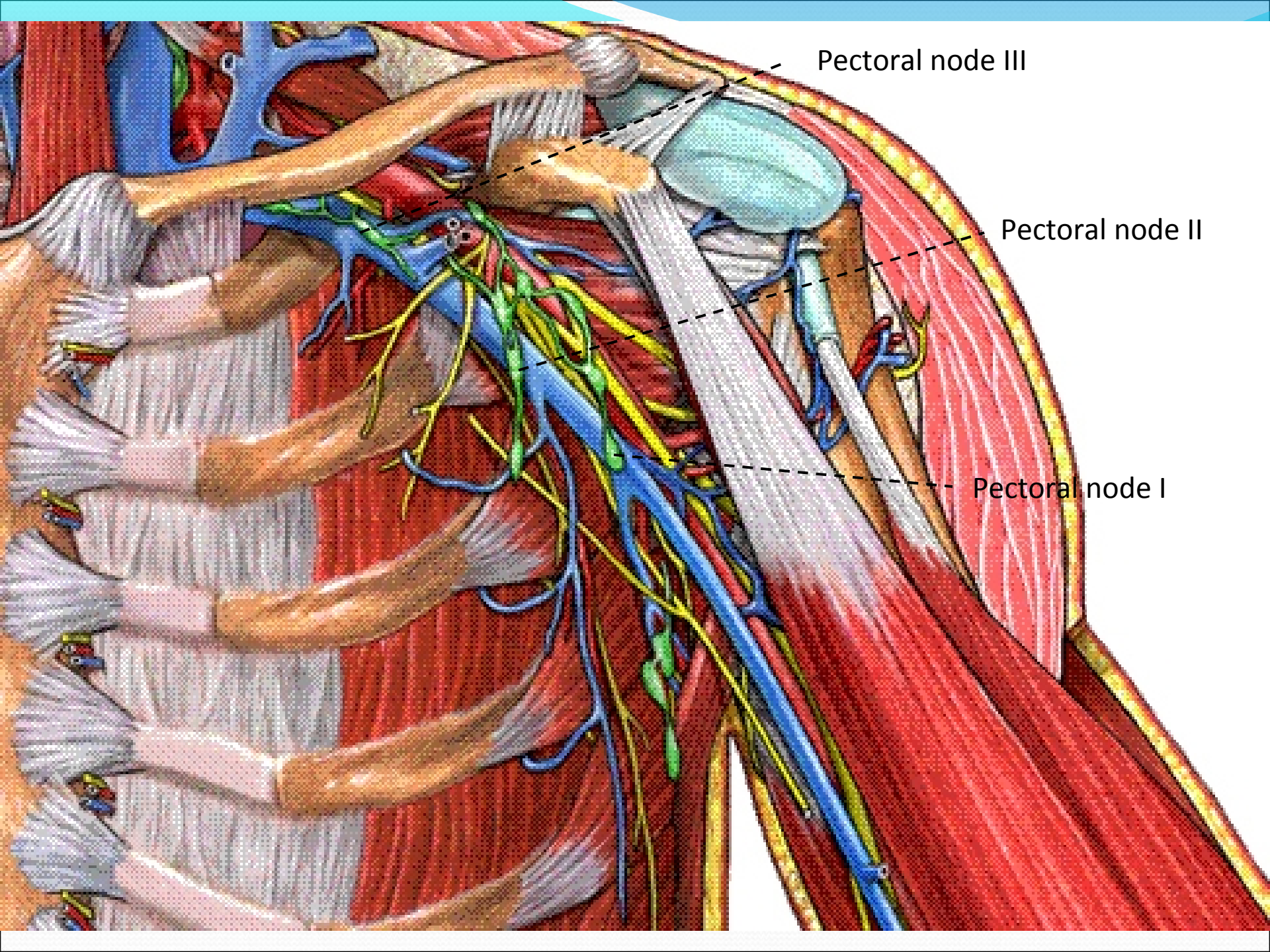
Axillary a.

Lateral thoracic a.









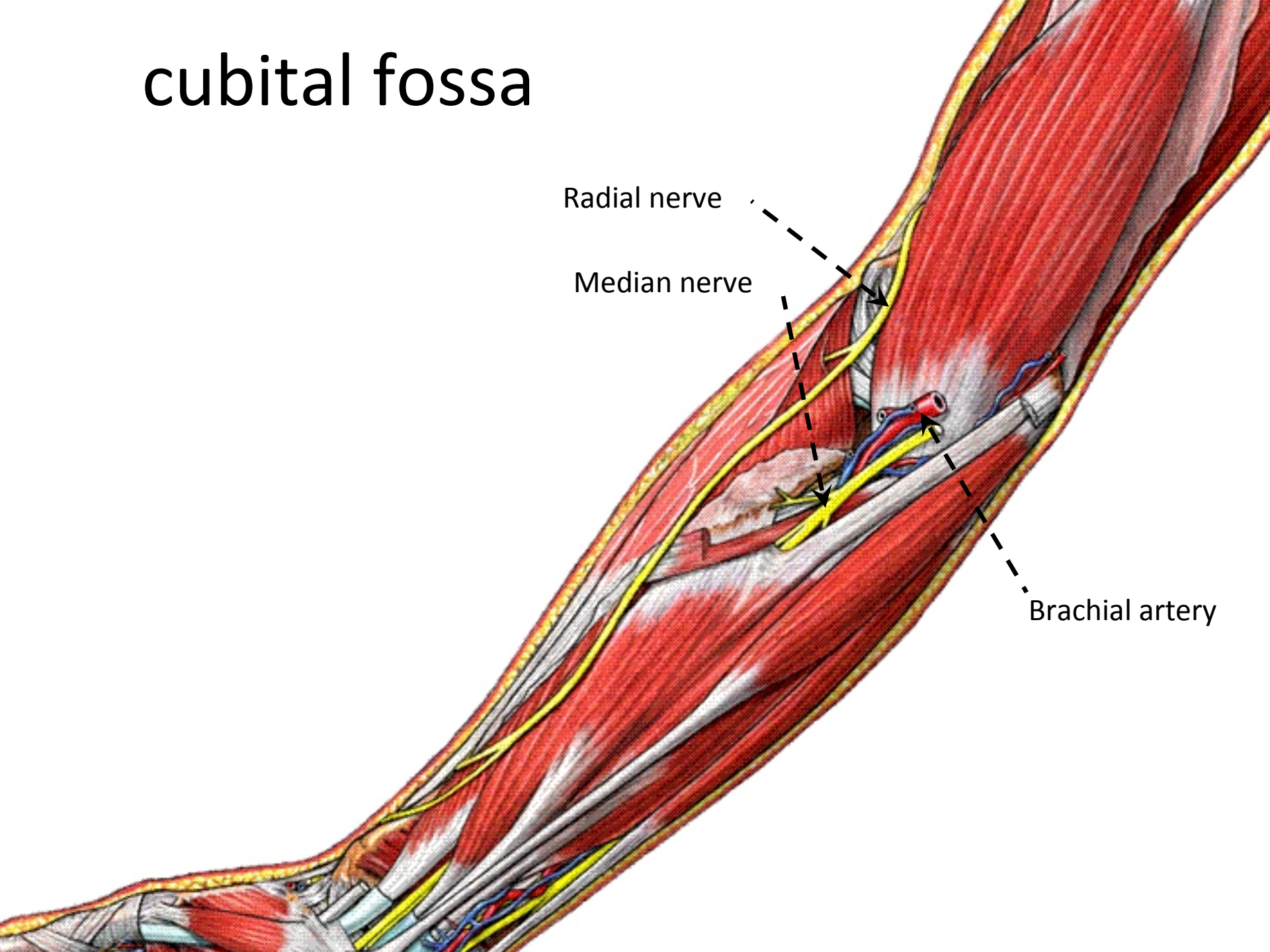
Pectoral node III

Pectoral node II

Pectoral node I



# cubital fossa

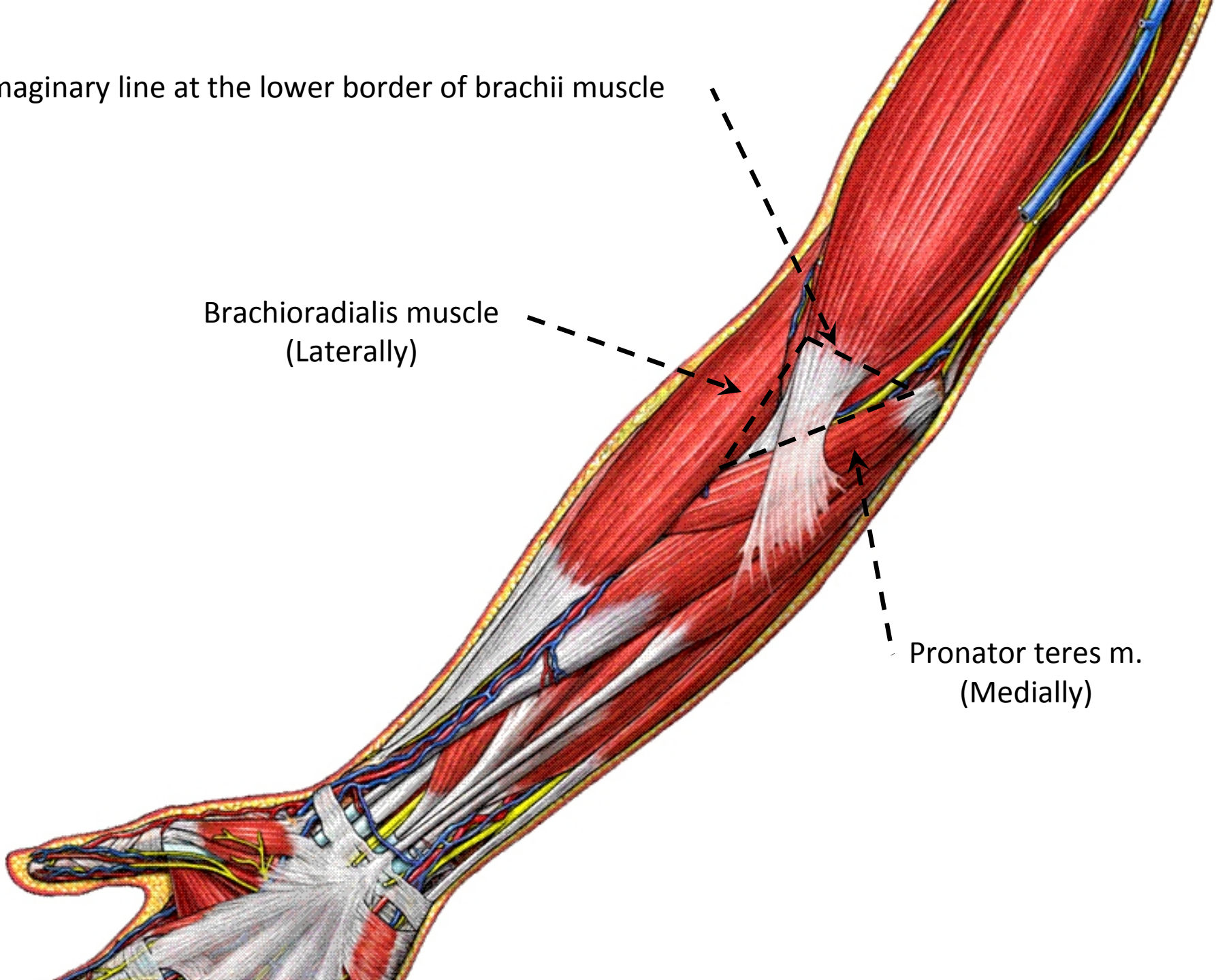


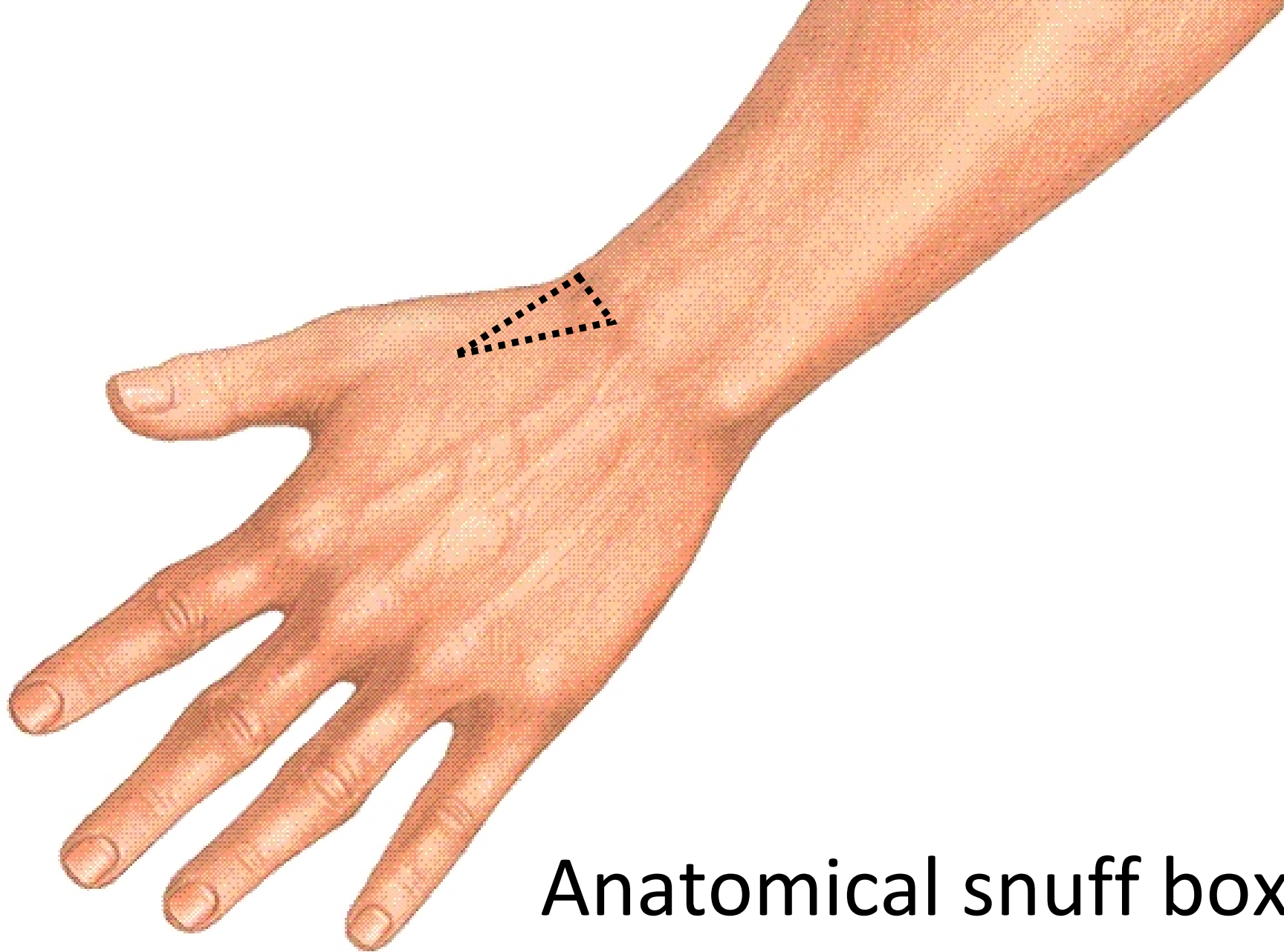


Imaginary line at the lower border of brachii muscle

Brachioradialis muscle  
(Laterally)

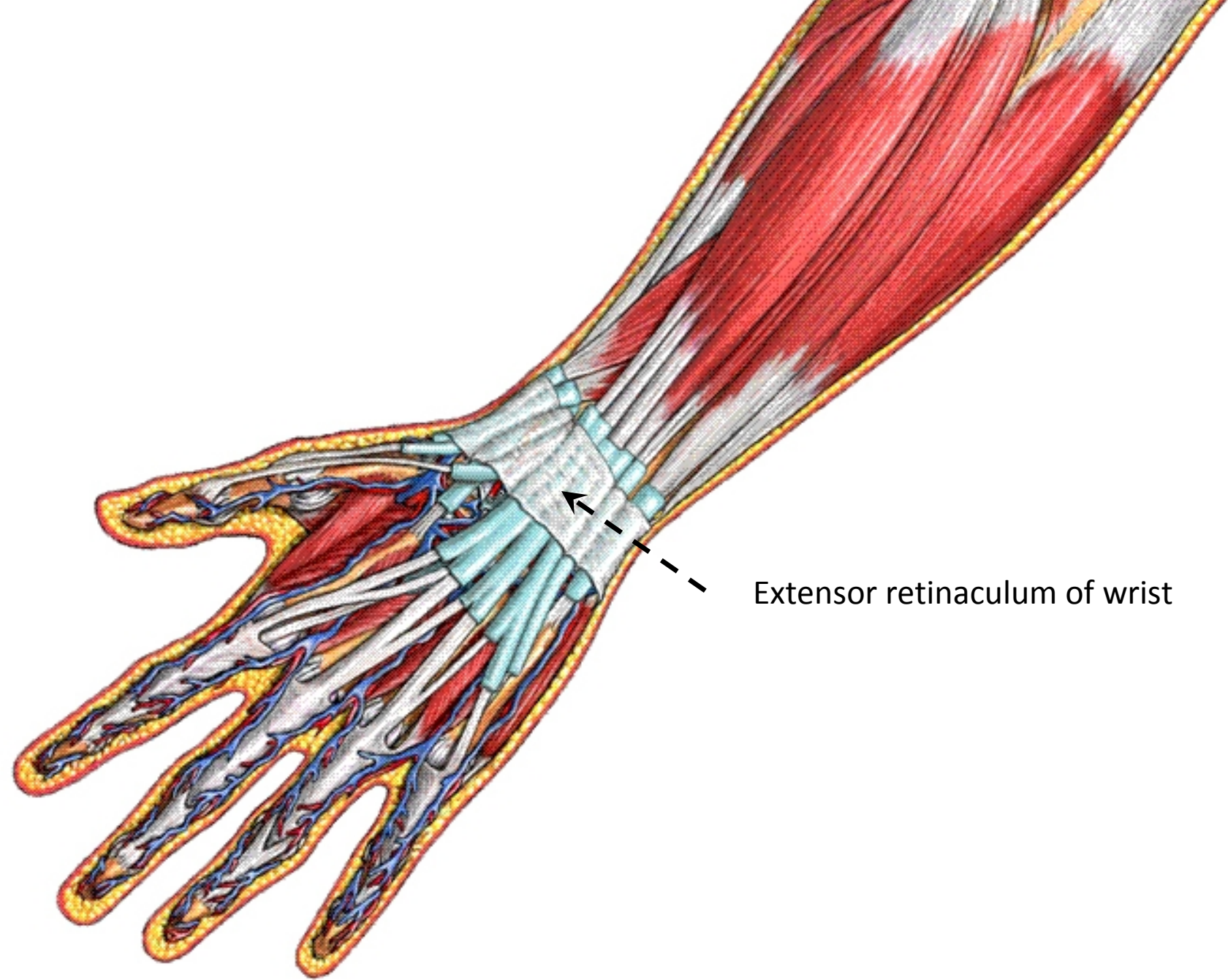
Pronator teres m.  
(Medially)





Anatomical snuff box





Extensor retinaculum of wrist

# breast & arm

## ➤ surgical anatomy

- apparent extent from 2<sup>nd</sup> to 6<sup>th</sup>
- actual from clavicle to 8<sup>th</sup>

## ➤ muscles which breast lies on :

- 1. Pectoralis major
- 2. Pectoralis minor ( divid axilla into 3 parts : below , behind , above )
- 3. serratus anterior

## ➤ Nipple

- axillary tail of spence : only part of breast which lie deep to deep fascia through langer foramen at 3<sup>rd</sup> ICS

## ➤ superficial veins of breast

## ➤ Lymphatics of breast ||||| مهمة جدا

## ➤ snuff box content :

- radial a
- cephalic vein ( just above styloid process of radius ) : venous cutdown  
N.B cephalic vein called = vein of anesthesia as it's nearly constant & while superior femoral artery = artery of anesthesia which just anterior to tragus



لَقَدْ قُمْنَا بِالْعَمَلِ بَنِيهِ بِحَالِهِ وَجَلَّ اللَّهُ عَزَّ وَجَلَّ  
رَأْسَهُ إِلَى بَيْتِهِ أَنْ يَقْبَلَهُمَا مِنَّا وَإِنْ يَعْصُوا بِالنَّفْسِ عَلَيْهِمْ

وَلَقَدْ أَقْنَيْنَا جَنَّةً مِنْ قُنَّا فَلَا يَنْسَوْنَ بَعْدَ عَوْدَةِ  
إِلَى الْمَلِكِ وَالْمَلِكِ بِمَنْ

لَقَدْ قُمْنَا بِالْعَمَلِ صَفَاةً جَارِيَةً عَلَيْهِ رُوحُ الْحَوْنِ الزَّمِيلِ

وَالْحَسْبُ حَمْدُ اللَّهِ

نُوفَاءً لِلَّهِ وَهُوَ بِالْفِرْقَةِ السَّامِيَةِ

اللَّهُمَّ اغْفِرْ لِي وَالْمُسْلِمِينَ وَالْمُسْلِمَاتِ وَالْمُؤْمِنِينَ وَالْمُؤْمِنَاتِ